PB81-145880

Procurement and Emissions Testing of 1969 and 1972/73 Model Year Gasoline Powered Light Duty Trucks, (6001-8500 lbs. GVWR)

EG and G Automotive Research, Inc.
San Antonio, TX

Prepared for

Environmental Protection Agency
Ann Arbor, MI

Jun 80

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Twenty-three 1969 and twenty-five 1972/73 in-use light duty trucks were obtained from the public, "tuned-up" according to manufacturer's specifications and tested for exhaust emissions utilizing the Federal Test Procedure. Triplicate FTP test data are presented along with duplicate tests of idle emissions for each vehicle. Eighteen engines were removed from procured vehicles and shipped to EPA for engine dynamometer testing.

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Procurement and Emissions Testing of 1969 and 1972/73 Model Year Gasoline Powered Light Duty Trucks, (6001-8500 lbs. GVWR)

by

EG&G Automotive Research, Inc.

San Antonio, Texas 78238

Contract No. 68-03-2683

EPA Project Officer: Larry D. Ragsdale

JUNE 1980

Prepared For:
Environmental Protection Agency
Office of Air, Noise and Radiation
Office of Mobile Source Air Pollution Control
Emission Control Technology Division
Standards Development and Support Branch
Ann Arbor, Michigan 48105

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A B S T R A C T

Twenty-three 1969 and twenty-five 1972/73 in-use light duty trucks were obtained from the public, "tuned" according to manufacturer's specifications and tested for exhaust emissions utilizing the Federal Test Procedure. Triplicate FTP test data are presented along with duplicate tests of idle emissions for each vehicle.

BACKGROUND

The Clean Air Act Amendments (CAAA) of 1977 directed the U.S. Environmental Protection Agency to promulgate new regulations which would contain revised, more stringent emission standards for heavy-duty vehicles. More stringent hydrocarbon (HC) and carbon monoxide (CO) standards were mandated for 1983 and later model year heavy-duty vehicles and more stringent oxides of nitrogen (NOx) standards were to be in effect beginning in the 1985 model year. The new regulations must contain standards that for HC and CO require at least a 90 percent reduction and for NOx, at least a 75 percent reduction from the actually measured emissions from heavy-duty gasoline fueled vehicles or engines manufactured during the baseline model year.

The new HC and CO standards then are to reflect at least a 90 percent reduction from the actually measured emissions of 1969 model year heavy-duty vehicles while the new NO_x standard must reflect a 75 percent reduction in emissions as measured from 1973 model year heavy-duty vehicles.

The Clean Air Act specifies that the new standards apply to vehicles having gross vehicle weight ratings (GVWR) over 6,000 pounds. Since vehicles over 6,000 pounds GVWR include two EPA defined vehicle classes, heavy-duty vehicles (GVWRs over 8,500 pounds) and light-duty trucks (GVWRs 6,001 to 8,500 pounds), it was necessary to propose new emission standards for both classes. To set these new standards, the baseline emission levels of both 1969 and 1972/73* model year heavy-duty vehicles and light-duty trucks were determined. The testing of 1969 and 1972/73 heavy-duty engines was accomplished under a separate EPA program.

Baseline emission levels of 1969 and 1972/73 model year light duty trucks were determined by EG&G Automotive Research, Inc. under EPA Contract No. 68-03-2683. The results of the 1969 LDT emission tests were provided to EPA by EG&G-AR. EPA then calculated the 1969 LDT HC and CO baseline by sales-weighting the emission values. The HC and CO baseline when reduced by 90 percent yields the 1984 LDT HC and CO emission standards of 0.8 g/mi HC and 10 g/mi CO. Similarly, the emissions results for the 1972/73 LDTs tested by EG&G-AR were used to calculate the 1972/73 LDT baseline. Reducing the 1972/73 NOx baseline by 75 percent yields the proposed LDT NO_x standard of 0.9 g/mi. EPA proposes that the HC, CO, and NOx standards apply to the entire LDT class (GVWRs less than 8,500 pounds).

This final report details EG&G-AR's efforts to determine baseline emission levels for 1969 and 1972/73 model year light-duty trucks.

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* Some 1973 vehicles had NOx controls on the engines. In these cases 1972 vehicles with the same basic engine were substituted for emissions testing.

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Section I

I N T R O D U C T I O N

This report is written as one of the requirements of EPA Contract No. 68-03-2683. It describes the work performed under this contract from July 1978 to June 1980. The impetus for developing the data in this contract, as explained in the Background, is the Clean Air Act with Amendments.

The intent of this contract was to provide data on the emissions levels of 1969 and 1972/73 Light Duty Trucks for utilization in the development of Federal Emissions Standards for 1983 and 1985 model year Light Duty Trucks. A secondary objective was to provide engines from 1969 Light Duty Trucks to EPA for testing of baseline emissions for the development of Standards for 1983 and later Heavy Duty Engines.

The following outlines and describes the contents of the remaining sections of this report:

- Section II, Contract Scope of Work, outlines the directions supplied by EPA for accomplishing the contract objectives.
- Section III, Procurement of Vehicles, summarizes contract activities devoted to acquiring appropriate vehicles for testing.
- Section IV, Vehicle Preparation and Maintenance, describes the procedures followed in pre-test vehicle preparations.
- Section V, Vehicle Emissions Testing, describes the procedures used in both FTP and short mode testing.

- Section VI, Results, contains tabular summaries of the FTP and idle emissions data obtained.

Attachments included in the last portion of this report summarize vehicle maintenance and contract performance data, and contain FTP quality audit worksheet forms.

All original test data packets including maintenance data have been submitted to EPA and are on file within EPA's control.

Section II
CONTRACT SCOPE OF WORK

The original contract covering the work described herein was executed on July 26, 1978. The original document called for the exhaust emissions testing of thirty 1969 and twenty-five 1973 model year gasoline-fueled medium duty trucks. 1969 trucks were to be tested three times as received and three times after maintenance. The 1973 trucks were to be tested three times after maintenance only. All engines were to be removed after completion of testing and delivered to EPA or an EPA-specified contractor for testing.

In some cases where certain procured 1973 vehicles included NOx control, equivalent 1972 models were substituted for testing to preserve the validity of the baseline. Consequently, seven 1973 units procured under this contract were replaced by 1972 models with the total procurement target then adjusted from twenty-five to thirty-two vehicles.

The final amended Scope of Work (finalized January 1980) required procurement and testing of twenty-three 1969 and thirty-two 1972/73 model year gasoline-fueled light duty trucks. Except for tests already conducted, all trucks were to be tested three times (three FTP's) after the manufacturer's specification "tune-up". Additionally each truck was to be tested twice for idle emissions. A total of eighteen of the vehicles to be specified by the EPA Project Officer were to have engines removed and shipped to EPA or EPA-specified contractor for engine dynamometer testing. Upon completion of this

testing, the engines were to be returned to EG&G-AR for reinstallation in vehicles and returned to the vehicle owner.

For the 1972/73 model vehicles, the emissions control label indicated compliance with engine (not vehicle) emission standards. "California only" vehicles were excluded except for vehicles sold nationwide which coincidently met the California standards.

The original contract required vehicles to be procured with less than 80,000 miles. Higher mileage vehicles or vehicles requiring more than a minor tune-up, were allowed only where EG&G-AR demonstrated to the EPA Project Officer that better vehicles could not be obtained by reasonable efforts. Due to difficulties encountered in obtaining lower mileage vehicles, the EPA Project Officer increased the allowable 1969 vehicle mileage from 80,000 miles to 90,000 miles (as of September 1978), if valve regrinding and resurfacing or engine overhaul had not been performed.

On April of 1979, this relaxed mileage restriction was also applied to the 1972 model vehicles. Further, vehicles with slightly over 90,000 miles were accepted if engine cylinder compression and leakdown checks indicated reasonably good condition.

Vehicles were required to be tested according to the federal light duty exhaust emissions test procedure defined in the Code of Federal Regulations, Title 40, Part 86, Subpart B as applicable to Light Duty Trucks. No evaporative emissions measurements, diurnal heat builds, or highway fuel economy tests were required. The idle emissions test procedure was defined by a proposed Subpart P of Part 86 of the above referenced Code of Federal Regulations, Title 40.

Section III

P R O C U R E M E N T O F V E H I C L E S

Tables III-1 and III-2 contain the original and revised contract vehicle procurement objectives supplied by EPA. These targets were formulated by EPA to provide a vehicle sample representative of the overall population for each model sales year. Due to difficulties in obtaining the precise vehicles requested within the mileage and engine configuration criteria established, the selection criteria were sometimes relaxed.

A. PROCUREMENT METHODS

The search for qualified vehicles was initially concentrated in the San Antonio, Texas area and progressed in enlarging geographic circles. The following methods were utilized in locating potential candidate vehicles:

(1) R. L. Polk list of registered vehicles - mail out and telephone follow-up

(2) daily scanning of local newspaper advertisements

(3) a newspaper ad campaign

(4) a radio commercial campaign

(5) a registration list obtained from Wilson Publishing Company - telephone contacts

(6) trips to cities outside the San Antonio area

(7) EPA indentified candidate vehicles

The initial procurement effort was made by mailing questionnaires, (Figure III-3) accompanied by a letter of explanation (Figure III-4), to

1969 TARGET VERSUS ACTUAL PROCURED ENGINES

MANUFACTURER	ENGINE	ORIGINAL TARGET QUANTITY	REVISED TARGET QUANTITY	ACTUAL QUANTITY
Chrysler	225	0-2	1	2 *
	318	2-3	1	2 *
Ford	240	1-2	1-2	0
	300	0-1	1	0
	302	1-3	2	2
	360	4-8	6	6
	390	0-2	1-2	0
GM	307	6-10	7	2
	250	2-4	2-3	3
	292	2-4	0-1	1
	350-4V	2-4	2	4
	396	0-1	0-1	0
IHC	304	1-2		0
	345	0-1	1	1
	392	-		0
	266	0-1		0
				23 **

* An extra unit had already been procured at time of issuance of Technical Directive revising the sampling target.

** Scope of work revised from original 30 vehicles to 23 vehicles.

Table III-1

1972/73 TARGET VERSUS ACTUAL PROCURED ENGINES

MANUFACTURER	MODEL YEAR	ENGINE	ORIGINAL TARGET QUANTITY	REVISED TARGET QUANTITY	ACTUAL QUANTITY
Chrysler	1973	360	1-2	2-3	3
	1973	318	1-2	1	1
	1972	400	-	0-1	0
	1973	225	0-1	0	0
	1973	400	0-1	0	0
Ford	1972	360	-	5-6	5
	1972	390	-	2	2
	1972	302	-	1	1
	1972	300	-	0-1	0
	1973	240	0-1	0	0
	1973	300	0-1	0	0
	1973	302	0-1	0	0
	1973	360	3-6	0	0
	1973	390	1-2	0	0
	1973	460	0-1	0	0
Chev/GM	1972	350-4V	-	7	7
	1973	454	1-2	2	2
	1973	292	0-1	1	1
	1973	250	0-1	0-1	1
	1973	350-4V	5-7	0	0
	1973	350-2V	1-2	0	0
IHC	1973	345		1	1
	1973	304	1	0-1	1
	1972	392		0-1	0
					25

Table III-2

EG&G AUTOMOTIVE RESEARCH INC.

5404 Bandera Road, San Antonio, TX 78238

VEHICLE OWNER QUESTIONNAIRE

CONTROL NO.

*PLEASE PROVIDE THE FOLLOWING INFORMATION:

Name		Telephone No.	
Street Address	City	State	Zip Code

Are you the original purchaser of the vehicle? ☐ YES ☐ NO

Vehicle: Year_____ Make_____ Model_____

Vehicle Identification Number _____

Gross Vehicle Weight Rating (GVWR) _____

Odometer Miles (Please indicate if past 100,000 miles) _____

Engine Size (Displacement) _____ CID

Carburetor: ☐ 1 Barrel ☐ 2 Barrels ☐ 4 Barrels

Transmission: ☐ Automatic ☐ Manual

Optional Equipment: ☐ Air Conditioning ☐ Power Steering ☐ Power Brakes

Has your vehicle had any major engine work; i.e. overhauls, cylinder heads rebuilt, etc.? ☐ YES ☐ NO

If the answer is YES, please briefly describe work done and the approximate odometer miles at the time._____

_____

_____

Has the carburetor on your vehicle ever been replaced or rebuilt? ☐ YES ☐ NO

Has the distributor on your vehicle ever been replaced or rebuilt? ☐ YES ☐ NO

If the answer to either of the above questions is YES, please briefly describe work done and the approximate odometer miles at the time._____

_____

What is the approximate mileage between one quart of engine oil adds?_____

Do you have any maintenance records on vehicle? If YES, please briefly describe records.

_____

To the best of my knowledge, the above information is true and correct.

_____ _____

(Owner's Signature) (Date)

*Whether or not you plan to participate, please return this form.

Thank you for your cooperation.

Figure III-3

EG&G AUTOMOTIVE RESEARCH, INC

8400 BANDERA ROAD, SAN ANTONIO, TEXAS 78238 • TEL(512)684-2310 TWX 910-871-1075

Dear Vehicle Owner:

We have been selected by the U. S. Environmental Protection Agency to conduct the testing program explained in the enclosed message from Mr. Charles Gray, Director Emission Control Technology Division. Preliminary information indicates that your vehicle meets the requirements as a possible test candidate.

Because of the lengthy and complete testing requirements of this program, the most practical method of vehicle procurement would be to purchase selected vehicles from private owners such as yourself. Purchases will be negotiated on an individual basis with a representative of EG&G-AR.

The National Automotive Dealers' Association (NADA) publication will be used as a general guideline in establishing a fair market value for the vehicles purchased. This publication will show the average wholesale and retail values for vehicles sold in the Southwestern region of the United States. It is recognized by vehicle dealers as the most accurate method of establishing the selling prices for used vehicles.

We hope you will join us in this important testing program. Please complete and return the enclosed prepaid form at your earliest convenience. If you have an unlisted telephone number, or if for any reason, it may be difficult to reach you by telephone, we would appreciate your calling us at 684-2310, extension 349.

Sincerely,

Maurice Forshee
Fleet Marketing Specialist

ja

Enclosures

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
ANN ARBOR, MICHIGAN 48106

OFFICE OF
AIR AND WASTE MANAGEMENT

Dear Vehicle Owner:

Under provisions of the Clean Air Act, the Environmental Protection Agency is required to determine emission levels from certain types of 1969 and 1973 model year trucks. Results of these tests will be used in assessing the effectiveness of existing programs and to determine appropriate future emission standards.

EG&G Automotive Research has been awarded a contract to perform this work. They have made a search of state registration lists and have concluded that your vehicle may be suitable. A detailed inspection will be made before any vehicle is accepted for testing. As a rather small sample will be tested, it is essential that the vehicles finally accepted meet all criteria. If you desire to participate please return the enclosed form so that further arrangements can be made.

The purpose of this program is limited. The fact that a particular vehicle may be misadjusted or exceed emission standards (1973 vehicles only) is of no interest. Emission test results from any truck will be combined with others of the same model year to determine average emission levels. No enforcement action will be taken by this Agency against anyone as a consequence of this test program. Our only concern is to develop statistically valid emission averages and to determine appropriate future emission standards.

I hope that you will find it possible to participate. Your careful consideration of this matter is appreciated.

Sincerely yours,

Charles Gray, Director
Emission Control Technology Division

Figure III-4

vehicle owners as identified on the R. L. Polk list. The results of the mailing indicated that the R. L. Polk list was somewhat obsolete and contained numerous errors. The Postal Department returned 13.9% of the questionnaires as undeliverable. Of the mailouts, 5.7% resulted in owner's responses. From this effort five vehicles were procured.

A radio commercial campaign was conducted for a one-week period, and then repeated for one week a month later. The response was favorable, and resulted in the purchase of five vehicles.

A newspaper campaign resulted in several potential leads, but no vehicle purchases.

Due to the low percentage of responses to the questionnaire mailing campaign in November, a second questionnaire mailing was sent out. This mailing included a $2.00 cash incentive to the vehicle owner for completing and returning the questionnaire and a further $10.00 incentive if an EG&G-AR procurement specialist inspected their vehicle. This mailing was sent only to the owners who had not previously returned their questionnaires. The Postal Department returned 7.5% as undeliverable. Of these mailouts, 8.9% resulted in owner's responses and eight units were purchased.

The local newspaper classified advertisements were monitored daily and proved to be an excellent vehicle source. Fourteen vehicles were procured through this media.

As the usefulness of the R. L. Polk list diminished, another listing was purchased from Wilson Publishing Company of Houston, Texas. This computer

listing incorporated the San Antonio, Houston, and Dallas, Texas metropolitan areas.

EG&G-AR supplied the computer company with vehicle alpha-numeric base VIN prefixes keyed to the needed vehicles. The computer print-out organized registered vehicles by owner, address, zip code, model year, vehicle type, and VIN number. This listing was found to be much more current than the R. L. Polk listing. Direct telephone contacts from this list resulted in the purchase of eight vehicles.

One vehicle candidate was identified by EPA and the supplied information resulted in a purchase.

As the candidate vehicles in the San Antonio area were expended, trips were made to El Paso, Texas; Denver, Colorado; and Dallas, Texas. These trips were successful as a one-time fresh source of vehicles. Six vehicles were purchased from these cities.

Table III-5 summarizes the procurement methods and results. The flow chart in Figure III-6 indicates the methodology utilized in procurement, inspection, repair, tune-up, engine removal and reinstallation and release of each test vehicle.

When a potential candidate vehicle was located, a procurement specialist conducted a preliminary inspection utilizing the form included as Figure III-7. This inspection included determination of the general condition of the vehicle and engine. Carburetor and distributor part numbers were verified. This original inspection also focused on any engine fluid leaks and non-routine repairs.

The owner was also questioned with regard to the accuracy of the odometer, oil consumption, maintenance, engine overhaul or changes, and whether the carburetor and/or distributor had been replaced or overhauled. If information was unfavorable, the vehicle was not procured.

B. SUMMARY OF RESULTS

A summary of vehicles procured, organized by method utilized, is shown in Table III-8. A detailed listing of the chronology of all vehicles involved in this project is included in Appendix B of this report.

SUMMARY OF PROCUREMENT EFFORT

(1) Questionnaire Mailing and Telephone from R. L. Polk List (1969 vehicles only)

	1969 Original Form	1969 Revised Form with Incentive	1973 Revised Form with Incentive	Total
Total Mailing	2186	789	919	3894
Returned by Post Office	303	59	115	477
Delivered	1883	730	804	3417
No Response	1758	660	671	3089
SUBTOTAL	125	70	133	328
Elimated by:				
- High mileage/major work	59	22	35	116
- Already sold	12	3	5	20
- Will not sell	3	-	1	4
- Misc. reasons	6	3	8	17
- Wrong type	40	34	83	157
SUBTOTAL	5	8	1	14
PURCHASED	5	8	1	14

(2) Newspaper (1969 and 1972/73 vehicles)

	EG&G-AR Advertisement	Owners Advertisement	Total
Total Contacts	10	445	455
Elimated by:			
- High mileage/major work	2	55	57
- Already sold	-	58	58
- Misc. reasons	-	8	8
- Wrong type	8	277	285
SUBTOTAL	0	14	14
PURCHASED	0	14	14

(3) Radio Advertisement (1969 vehicles only)

		Total
Total Responses	33	
Elimated by:		
- High mileage	7	
- Will not sell	2	
- Wrong type	19	
SUBTOTAL	5	5
PURCHASED	5	5

(4) R. L. Wilson Telephone Contacts (1972/73 vehicles only)

Total Contacts (approximately	700	
Elimated by:		
- High mileage/major work	350	
- Already sold	150	
- Will not sell	185	
- Misc. reasons	15	
SUBTOTAL	8	8
PURCHASED	8	8

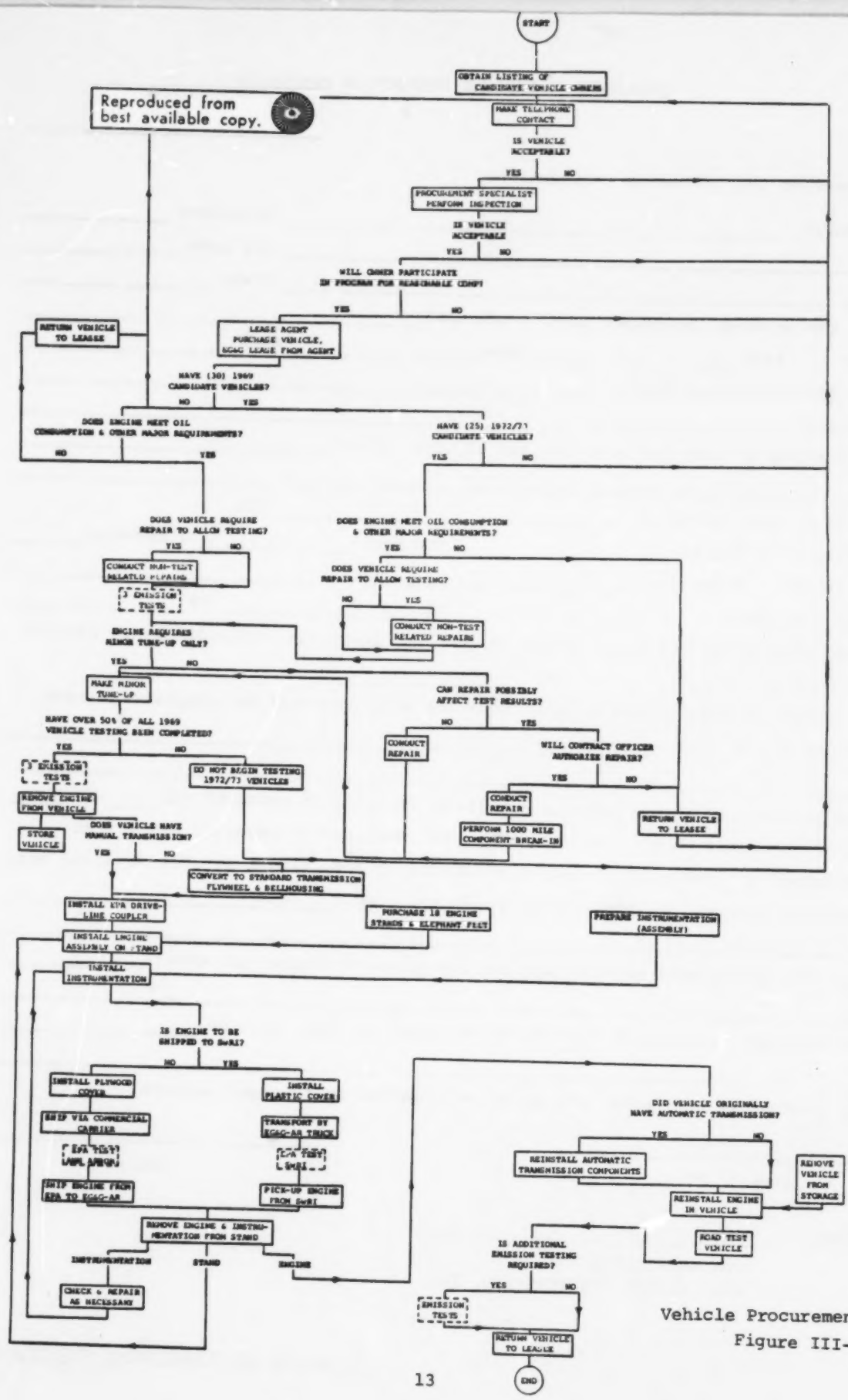
(5) EG&G-AR Representative Trips to Dallas and El Paso, Texas and Denver, Colorado (1972/73 vehicles only)

	Dallas	El Paso	Denver	
Total Contacts	16	20	37	73
Elimated by:				
- High mileage/major work	2	4	8	14
- Already sold	1	1	0	2
- Wrong type	3	3	6	12
SUBTOTAL	1	2	3	6
PURCHASED	1	2	3	6

(6) EPA Supplied Purchase Contact (1969 vehicles) 1

TABLE III-5

Reproduced from best available copy.



Vehicle Procurement Flow Chart
Figure III-6

PRELIMINARY VEHICLE INSPECTION CHECKLIST

CONTROL NO. _____

Please provide the following information:

Name (Owner) _____ Telephone _____

Street _____ Zip Code _____

City _____ State _____

Are you the original purchaser of the vehicle? _____

Vehicle: Year _____ Make _____ Model _____

Vehicle Identification Number _____

GVWR Rating _____

Odometer Miles (Please indicate if past 100,000 miles) _____

_____

Engine Size (Displacement) _____ CID

Carburetor: 1 Barrel _____ 2 Barrels _____ 4 Barrels _____

Transmission: Automatic _____ Manual _____

Optional Equipment: A/C _____ PS _____ PB _____

Has your vehicle had any major engine work; i.e. overhauls, cylinder heads rebuilt, etc? Yes _____ No _____

If the answer is YES, please briefly describe work done and the approximate odometer miles at the time. _____

_____

Has the carburetor on your vehicle ever been replaced or rebuilt? YES _____ NO _____

Has the distributor on your vehicle ever been replaced or rebuilt? YES _____ NO _____

If the answer to either of the above questions is YES, please briefly describe work done and the approximate odometer miles at the time. _____

_____

What is the approximate mileage between one quart of engine oil adds? _____

_____

Do you have any maintenance records on vehicle? If YES, provide _____

_____

To the best of my knowledge, the above information is true and correct.

_____ _____

(Owner) (Date)

WITNESS: _____

JIM MACFEETERS
EG&G AUTOMOTIVE RESEARCH, INC.

Figure III-7

SUMMARY OF VEHICLES PROCURED BY METHOD UTILIZED

(Test Vehicle Code Numbers Shown)

1969 Vehicles

Polk Phone	Polk Quest.	Vehicle Owner's Newspaper Ad	Radio	EPA	Total
418	425	404	473	622	
419	427	428	602		
421	450	441	613		
444	491	610	614		
601	607		623		
618	617				
	621				
6	7	4	5	1	23

1972/73 Vehicles

Polk Quest.	R.L. Wilson	Vehicle Owner's Newspaper Ad	Trip	Total
608	629	474	625	
	634	486	627	
	635	605	628	
	637	609	630	
	641	611	631	
	642	612	632	
	643	620		
	644	624		
		639		
		640		
1	8	10	6	25

Table III-8

Section IV

VEHICLE PREPARATION AND MAINTENANCE

A. INITIAL MECHANICAL INSPECTION

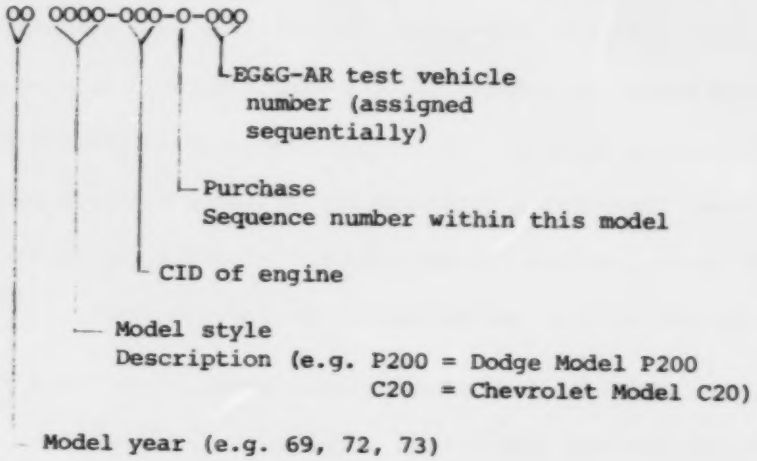
After acquisition of a vehicle, a comprehensive inspection and diagnostic examination was performed utilizing the checklist included as Figure IV-1. During this detailed inspection, all critical part numbers were identified and verified either by referencing the manufacturer's shop manual or contacting the EPA project officer. This inspection also included determination of engine cylinder compression pressures and cylinder leakdown percentage. If any discrepancy or deviation from the manufacturer's specification was determined, the EPA project officer was contacted for instructions.

Initially, the 1969 baseline vehicles were tested three times "as received". Ten vehicles received such a test sequence prior to an EPA directed change. The remainder of the 1969 vehicles as well as all of the 1972/73 models were tested only in a maintained condition.

B. VEHICLE TUNE-UP

The "maintained" test sequence followed a tune-up. The form illustrated in Figure IV-2 reflects the documentation utilized in conjunction with manufacturer shop manual tune-up specifications. This "tune-up" consisted of installation of new OEM (1) condensor, (2) ignition points set, (3) distributor rotor, (4) distributor cap, (5) spark plug ignition wire set, (6) spark plugs, (7) air cleaner element, (8) PCV valve, and (9) in-line fuel filter, if so equipped.

The distributor curves were checked utilizing a Sun Electric Model 506 distributor tester. If out of specification, the distributor was adjusted or it was replaced. Additionally, carburetors were adjusted for critical parameters such as idle speeds and idle air fuel ratio according to shop manual recommendations. A summary of major vehicle component identification numbers and maintenance data is included as Appendix A to this report. Vehicles were coded with a serial number composed of the following digits:


00 0000-000-0-000
EG&G-AR test vehicle number (assigned sequentially)
Purchase Sequence number within this model
CID of engine
Model style Description (e.g. P200 = Dodge Model P200
C20 = Chevrolet Model C20)
Model year (e.g. 69, 72, 73)

Where manufacturer's specifications (including compressions) could not be met with a minor tune-up, the EPA project officer was contacted for direction on further repair work. Repairs required were, in general, determined as a result of techniques such as:

1) dry-wet cylinder compression pressure measurements
2) Sun Electric's procedure for cylinder leakdown check
3) idle emission measurements of hydrocarbons and carbon monoxide
4) visual inspection of carburetor for obvious internal or external leakages

Extreme care was utilized to ensure that the original specifications were maintained. Comments are included on the Vehicle Maintenance Summary Forms (Appendix A) where repairs other than minor tune-up tasks were performed. Vehicles 427 and 643 which required valve set grinding, valve replacements and piston ring replacements were driven an additional 1,000 miles for a break-in after the repair and prior to emission testing.

C. ENGINE REMOVAL AND SHIPMENT

Following completion of all tests on a given vehicle, the results were reported to EPA. EPA then advised EG&G-AR which vehicles to remove engines from and the point of destination. (See Figure IV-3 for chart of removed engines). The removed engines were each prepared for shipment in a "ready-to-test" condition following EPA engine dyno testing guidelines.

As EPA completed testing on the engine assemblies, they were returned to EG&G-AR and the engines removed from the stand and reinstalled in the original vehicle. Each vehicle was either released to the lease agent at this point or retested by EG&G-AR prior to return.

AS RECEIVED INSPECTION FORM

Vehicle No.: _____ Inspected by: _____

Date: _____ License Plate Expiration Date: _____

Odometer: _____ State Inspection Expiration Date: _____

EPA VEHICLE INSPECTION SHEET

1. Test related items. Fill in all blanks. Record part numbers where applicable.

Make _____ Model _____

Year _____ V.I.N. _____

Engine _____ (CID) Engine Serial No. _____

Engine oil leaks _____

_____

Carburetor: Type _____ Tag No. _____

Idle speed (curb idle) _____ RPM

Fast idle speed _____ RPM

Choke: Automatic _____ Manual _____

Accelerator pump linkage position _____

_____

Fuel leaks _____

Distributor I.D. No. _____

Distributor general condition: _____

	BRAND	CONDITION
(a) Ignition wires	_____	_____
(b) distributor cap	_____	_____
(c) distributor rotor	_____	_____
(d) points	_____	_____

Dwell _____ degrees

Timing _____ degrees

Figure IV-1

Spark Plugs:

Cylinder	Make	Type	Gap	Condition
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____

Cylinder Compression: 1_____ 2_____ 3_____ 4_____
5_____ 6_____ 7_____ 8_____

Cylinder leak down (%) 1_____ 2_____ 3_____ 4_____
5_____ 6_____ 7_____ 8_____

Oil Consumption (blow-by) evident?___ _____

PCV valve condition: _____

Air cleaner condition:_____

Vacuum hose routing appear correct?_____

II. General Items Condition:

Transmission Type:_____

Transmission Fluid Level:_____

Transmission Fluid Leaks:_____

Rear Axle Ratio:_____

Rear Axle Lube Level:_____

Rear Axle Lube Leaks:_____

Exterior condition body condition:_____

_____

_____

_____

Tire Size:_____ Condition:_____

_____ Spare: Yes___No___

Fuel Caps (present, leaking):_____

Coolant Leaks:_____

Drive Belt condition:_____

Alternator, Bracket, & Wiring condition:_____

_____

Fuel Leaks:_____

Voltage Regulator condition:_____

_____

Battery condition:_____

_____ _____

Figure IV-1
(continued)

Power Steering Pump, Bracket, Lines (condition):_____

_____

Brake Master Cylinder condition:_____

_____

Brake Master Cylinder Fluid Level:_____

Exhaust Mainifold Condition:_____

_____

Exhaust Header Pipe condition:_____

_____

Muffler condition:_____

_____

Exhaust Tail Pipe condition:_____

_____

III. Operate the following and report condition:

Headlights:_____

Tail lights:_____

Brake lights:_____

Turn Signals:_____

4-Way Flashers:_____

Horn:_____

Windshield Wipers:_____

Figure IV-1
(continued)

MINOR TUNE-UP FORM
EPA
TUNE-UP PROCEDURE

Replace:

Air Cleaner element Part No._____

Spark Plugs
Type_____

Gap: Spec_____, set to_____

Point Set Part No._____

Condenser Part No._____

Distributor Rotor Part No._____

Distributor Cap Part No._____

Spark Plug Ignition Wire Set Part No._____

PCV Valve Part No._____

Dwell:

Found at	Spec	Set To
_____°@_____RPM	_____°@_____RPM	_____°@_____RPM
_____°@_____RPM	_____°@_____RPM	_____°@_____RPM
_____°@_____RPM	_____°@_____RPM	_____°@_____RPM
_____°@_____RPM	_____°@_____RPM	_____°@_____RPM

Timing:*

Found at_____° _____TDC

Spec _____° _____TDC

Set To _____° _____TDC

*_____

_____

Check exhaust manifold heat control valve for free operation.

Apply _____

to bushing and shaft if necessary.

Set carburetor idle mixture to specifications:

Spec:	Set To:
Idle mixture screws _____ turns open	_____ turns open
Idle speed (curb idle) _____ RPM	_____ RPM
Fast idle speed _____RPM	_____ RPM
Fast idle cam position @_____	_____ in.
Choke unloader_____ in.	@_____

Adjust throttle stop screw to specifications

_____

Set accelerator pump linkage to proper position

_____

Figure IV-2

ENGINE REMOVAL CHART

1969

Vehicle No.	Model Year/ Manufacturer/Model	Engine Size (CID)
69D200-318-01-418	1969 Dodge D-200	318
69F250-360-01-421	1969 Ford F-250	360
69F250-360-02-425	1969 Ford F-250	360

1972/1973

Vehicle No.	Model Year/ Manufacturer/Model	Engine Size (CID)
73C20-454-01-474	1973 Chev C-20	454
73D200-360-01-486	1973 Dodge D-200	360
73D200-318-01-605	1973 Dodge D-200	318
73IHC-1210-304-01-611	1973 IHC 1210	304
72F250-360-01-620	1972 Ford F-250	360
72F250-360-02-624	1972 Ford F-250	360
73C20-292-01-628	1973 Chev C-20	292
72C20-350-08-629	1972 Chev C-20	350
72F250-360-03-630	1972 Ford F-250	360
72C20-350-09-631	1972 Chev C-20	350
72C20-350-10-634	1972 Chev C-20	350
72F250-390-01-635	1972 Ford F-250	390
73IHC-1210-345-03-639	1973 IHC 1210	345
72F250-390-02-640	1972 Ford F-250	390
72C20-350-12-642	1972 Chev C-20	350

Table IV-3

Section V

V E H I C L E E M I S S I O N S T E S T I N G

A. TEST LABORATORY

EG&G Automotive Research Inc.'s Power Systems Research and Development Laboratory houses five functions, 1) Chassis Dynamometer Testing, 2) Motorcycle Dynamometer Testing, 3) Stationary Testing, 4) Gas Cylinder Storage and 5) Office Area.

The Chassis Dynamometer area is a temperature controlled, 2500 square foot facility with one chassis dynamometer. It is of sufficient size to soak six vehicles. The temperature was maintained at 68 to 86^{o}F during the performance of the subject testing.

B. EQUIPMENT AND EQUIPMENT CHANGES

1. Chassis Dynamometer

The dynamometer used for the emissions testing conducted under the subject contract was a Clayton Model ECE-50 water brake dynamometer with an inertia weight range of 1000 to 8875 pounds in 125 pound increments and equipped with automatic road-load power control. It is a direct drive double-roll-chassis with a roll diameter of 8.65 inches and a roll's center line spacing of 17.25 inches.

2. Constant Volume Samplers

During the period of the contract two constant volume samplers were used. From contract initiation through September of 1979, a Scott Model 302 PDP-CVS was utilized. This unit is a variable speed unit which allows four selectable flow rates ranging from approximately 100 CFM to 325 CFM. However,

during this contract, only the 325 CFM range was used.

From September 1979 to completion of the contract, a Horiba Model 20B CFV-CVS was used. This unit has a flow capacity of approximately 325 CFM.

3. Analytical Equipment

Two analytical systems were also utilized during the contract performance. From initiation through September 1979, the analytical system used was one constructed by EG&G-AR and included the following equipment:

a) Carbon Monoxide: Beckman 315B with ranges of 0 - 1000 and 5000 ppm full scale.

b) Carbon Dioxide: Beckman 315B with ranges of 0 - 2.5 and 5.0% full scale.

c) Hydrocarbons: Horiba FIA-2A with ranges of 0 - 100, 500, 1000 and 5000 ppm full scale.

d) Nitric Oxides: Thermo-Election 10A with ranges of 0 - 100, and 250 ppm full scale.

After September 1979, the analytical bench utilized was one designed by EG&G-AR and constructed by Horiba Instruments, Inc. The analyzers in this bench and their full scale ranges are as follows:

a) Carbon Monoxide: Horiba AIA-23A with ranges of 0 - 100, 500, 1000 and 5000 ppm.

b) Carbon Dioxide: Horiba AIA-23 with ranges of 0 - 1.5 and 4.0%.

c) Hydrocarbons: Horiba FIA-23A with ranges of 0 - 100, 500, 1000 and 5000 ppm.

d) Nitric Oxides: Horiba CLA-22A with ranges of 0 - 100 and 300 ppm.

4. Temperature Recorders

The soak area temperature was recorded on an Esterline Angus E1124E multi-point temperature recorder with a range of 50° to 100°F utilizing T-type (copper-constantine) thermocouples as sensors.

The wet bulb/dry bulb vehicle cooling temperature was recorded on an Esterline Angus Model MS412B two channel strip chart temperature recorder with T-type thermocouples used as sensors. Wet bulb temperatures were measured incorporating a wet sock over the thermocouple, with the Hartzel Model 23-24-NDY 5250 CFM fan providing air flow over the wet bulb thermocouple in addition to vehicle cooling.

C. TEST PROCEDURES

1. FTP Testing

Each vehicle was tested in accordance with Title 40, Code of Federal Regulations, Part 86 for light-duty gasoline powered vehicles. The vehicles did not receive evaporative emissions tests nor did they undergo the diurnal heat build prior to emissions testing. The fuel used was Idolene #30 leaded gasoline.

2. Idle Emissions Testing

The vehicles were subjected to a minimum of two idle emissions tests conducted in accordance with the Subpart P, which was added to Part 86 of Title 40, Code of Federal Regulations, January, 1980 and is titled: Emissions Regulations for New Gasoline-Fueled and Diesel Heavy-Duty Engines and Vehicles and New Light-Duty Trucks; Idle Test Procedures. The dilute measurement method was utilized, (Section 86.1537-83).

D. QUALITY CONTROL PROCEDURES

To ensure emission test conformance to Federal Test Procedure Specifications, the equipment utilized were subjected to the following quality control checks:

1. Chassis Dynamometer

   a) A complete calibration was performed prior to initiation of testing. The calibration includes speed, load cell dead-weight, deadband adjustment and dynamometer coastdown. This calibration was repeated after any maintenance was performed that could have affected the calibration or when a weekly verification exceeded the $\pm$ 0.5 road load horsepower tolerance.

   b) On a weekly basis coastdown times were verified on half of the inertia-weight/road-load combinations used. The following week the remainder of the inertia-weight/road-load combinations used were verified. A speed check at 74.54 km/hr (46.3 mph), 1800 rpm was completed on a weekly basis.

   c) During the dynamometer warm-up and prior to the start of each test, the indicated horsepower for the selected inertia weight was verified at 50 mph. If the indicated horsepower exceeded $\pm$ .2 horsepower, the reason for the deviation was investigated, the problem repaired and calibrations performed as required.

   d) The dynamometer was lubricated and maintained in accordance with Clayton's recommended maintenance schedule.

2. CVS System

   a) The CVS System received a complete calibration according to

the guidelines set forth in Title 40, Code of Federal Regulations, Part 86, CVS System Calibration prior to the start of the program, when maintenance was performed that could have had an effect on the calibration or when deemed necessary by EG&G-AR Quality Control personnel.

b) The flow computation board calibration on the CFV was verified on a weekly basis. If the variance of one counter exceeded ten counts from the average counts of the calculated SCFM and the indicated SCFM exceeded five counts, the flow computation board was adjusted.

c) On a daily basis, a CVS System Verification was performed using the propane recovery method as outlined in Title 40, Code of Federal Regulations, Part 86, Section 86.119-78 (c). If the recovery was outside of the $\pm$ 2% tolerance, the problem was identified and repaired. Two successive recoveries within $\pm$ 2% were obtained before start of testing.

3. Analytical Bench

a. Monthly calibrations on all used analyzer ranges were conducted using seven gases spaced somewhat evenly over each range (e.g., zero, 15, 20, 45, 60, 75 and 90 percent of full scale. The gases used to calibrate the CO, CO_2, and NO_x analyzers were all single blend gases with nitrogen as the diluent. The gases used for FID were single blend gases using propane with air as the diluent. All of the above gases were purchased from Scott Specialty Gases and were gravimetrics with 0 $\pm$ 1%

certified analysis and traceable to NBS Standards. Anytime maintenance was performed, weekly curve checks were out of limits, or when deemed necessary by the Quality Control Supervisor, a complete calibration was performed.

b) On a weekly basis all analyzer curves were checked using the ± 1.0% gravimetric gases. These checks utilized 90, 60 and 30% of full scale gases one week, alternated with 75, 45 and 15% gases the following week. If any of the readings exceeded ± 1% of the concentration for gases above 50% of meter, the instrument received a complete calibration.

c) On a daily basis, the entire analytical system was leak checked, zero and span drifts on all analyzer ranges were measured and recorded, zero and span pot settings recorded, NO_x converter efficiency checked (tolerance: greater than 90% and less than 100%), CO analyzer vapor interference checked (using CO_2 bubbled through water), propane recovery measured, span gas cylinder pressures recorded (cylinder replaced if less than 100 psig), HC hangup checked, and ambient HC and CO analyses were performed.

4. Soak Area Temperature Recorder and Wet Bulb/Dry Bulb Recorder

a) The temperature recorders were calibrated on a monthly basis by referencing the temperature sensors to a certified thermometer. They were checked at ambient, cool (approximately 60°F) and warm (approximately 90°F) temperature. Response time was also checked and recorded.

b) On a daily basis the recorder was checked at ambient temperatures.

5. Strip Chart Recorders

The chart speed and linearity of all emissions recorders and the driver's aid were checked on a weekly basis. Response time and deadband adjustments were also checked during this calibration.

E. TEST AUDITING AND VALIDATION

In order to ensure that all tests had been conducted in a manner consistent with procedural requirements, each data packet was manually audited using the audit checklists included in Appendix C of this report. These forms were completed by the Quality Audit technician. If any questions arose, the test packet was returned to the test technician who conducted the test. If the test technician could not reasonably resolve anomalies to the satisfaction of the Quality Audit technician, the test was invalidated.

During the course of the emissions testing conducted under this contract, some tests were invalidated for the following reasons:

1. Test technicians procedural (protocol) error as discovered by either the test technician or the quality audit technician.

2. Mechanical failure of the vehicle (i.e. failure of the engine to start at the beginning of the test, failure to restart after a stall, tire failure, etc).

3. Exhaust leaks discovered during a test. This problem was usually detected during a test. The test would be aborted and the vehicle exhaust system was repaired prior to attempting retests.

4. Analytical instrumentation failure to meet required calibration or post test specifications.

5. In some cases it was discovered that vehicle tune-ups were incomplete or had been performed incorrectly prior to testing.

In all cases, EPA was notified of invalid test data as soon as the invalidating reason was discovered. After remedying the problems, the tests were reperformed until the desired number of valid test were obtained. In some cases due to timing or other restraints only two valid repeat tests were conducted after an invalid test sequence.

Section VI
R E S U L T S

A. FTP TEST RESULTS

Tables VI-1 and VI-2 included in this section summarize the average FTP exhaust emissions results for the 1969 and 1972/73 Light Duty Trucks respectively. These data are shown as the average of valid test sequences for each vehicle. For the 1969 vehicles, "as received" test results are shown for ten vehicles in addition to the After Maintenance tests for all vehicles. Additionally, the average emissions levels for each vehicle class is also shown in the tables.

The average emissions for all vehicles after maintenance are:

	HC	CO	NO_x	FE
1969 models (23)	6.63 gpm	78.36 gpm	3.99 gpm	12.0 mpg
1972/73 models (25)	5.18 gpm	55.01 gpm	3.55 gpm	11.2 mpg

The average emissions for the ten 1969 vehicles which received "as received" FTP tested prior to are:

	HC	CO	NO_x	FE
Before Maintenance	10.43 gpm	109.8 gpm	4.42 gpm	11.4 mpg
After Maintenance	6.60 gpm	83.7 gpm	4.01 gpm	11.9 mpg

The data listed in Tables VI-3 and VI-4 are individual test results for each vehicle. These data were utilized by EPA to calculate sales weighted emissions levels for each baseline period.

B. IDLE EMISSIONS TEST RESULTS

Tables VI-6 and VI-6 summarize the idle emissions results for the 1969 and 1972/73 model Light Duty Trucks respectively. The average idle emissions for these vehicles are:

	HC	CO
1969 models - After Maintenance (17)	3504 ppm	2.883%
1972/73 models - After Maintenance (24)	4415 ppm	0.831%

TABLE VI-1

1969 L.D.T. BASELINE EMISSIONS RESULTS

VEHICLE	CID	VEH.#	GVW	% of L.D.T. SALES (by class)	HC (grams per mile)		CO (grams per mile)		NO_x (grams per mile)		F.E. (MPG)	
					As Rec'd	After Maint.	As Rec'd	After Maint.	As Rec'd	After Maint.	As Rec'd	After Maint.
1 Dodge	225	428	7500		3.542	7.651	28.762	70.070	9.639	5.488	13.59	13.68
2 Dodge	225	404	7200		4.985	4.238	212.386	86.072	3.503	6.384	10.06	12.03
AVERAGE - Dodge 225				2.2	4.264	5.945	120.574	78.071	6.571	5.936	11.83	12.86
3 Dodge	318	418	7500		7.375	7.856	62.946	85.976	5.536	4.354	12.40	11.81
4 Dodge	318	444	7500		14.526	11.480	99.103	102.562	4.679	3.918	13.11	13.26
AVERAGE - Dodge 318				3.3	10.951	9.668	81.025	94.269	5.108	4.136	12.76	12.54
5 Ford	302	618	6200			4.096		69.613		3.267		11.17
6 Ford	302	622	7600			4.400		13.579		6.936		12.54
AVERAGE - Ford 302				7.1		4.248		41.596		5.102		11.86
7 Ford	360	610	6100			6.925		118.007		5.382		10.18
8 Ford	360	473	6900		8.953	4.547	222.111	65.038	1.801	4.862	9.47	11.73
9 Ford	360	613	6900			5.942		67.867		5.139		10.84
10 Ford	360	491	7500			5.107		74.948		5.995		11.08
11 Ford	360	421	6900		8.810	7.963	97.458	60.709	3.125	2.904	11.43	12.39
12 Ford	360	425	6200		4.460	2.946	38.144	44.556	3.335	2.767	8.54	7.63
AVERAGE - Ford 360				24.2	7.408	5.572	119.238	71.854	2.754	4.508	9.81	10.64
13 Chev	250	441	7500		4.319	3.910	53.460	27.438	5.575	4.895	13.71	13.22
14 GMC	250	614	7500			4.825		37.814		2.763		13.13
15 Chev	250	623	7500			7.516		62.402		3.421		13.63
AVERAGE - Chev 250				9.4	4.319	5.417	53.460	42.551	5.575	3.693	13.71	13.33
16 Chev	292	617	7500			10.335		83.903		3.717		11.90
AVERAGE - Chev 292						10.335		83.903		3.717		11.90
17 Chev	307	607	7500			9.111		95.537		3.618		12.76
18 Chev	307	621	7500			5.128		56.641		3.231		14.81
AVERAGE - Chev 307				28.4		7.120		76.089		3.425		13.79
19 Chev	350	450	7500		39.592	7.628	137.982	144.841	4.576	2.365	9.96	10.84
20 Chev	350	419	7500		7.725	7.767	145.802	149.356	2.377	2.140	11.95	12.00
21 Chev	350	427	7500			6.789		70.528		2.825		12.03
22 GMC	350	602	7500			8.623		106.630		3.155		11.21
AVERAGE - Chev 350				7.8	23.659	7.702	141.892	117.839	3.477	2.621	10.96	11.52
23 IHC	345	601	7500			7.612		108.287		2.272		10.93
AVERAGE - IHC 345				.7		7.612		108.287		2.272		10.93
* AVERAGE - 10 vehicles with AS RECEIVED MAINTENANCE					10.429	6.599	109.815	83.662	4.415	4.008	11.42	11.86
* AVERAGE - 23 vehicles AFTER MAINTENANCE ONLY						6.626		78.364		3.991		11.95

* These averages are not sales weighted

TABLE VI-2

1972/73 L.D.T. BASELINE EMISSIONS RESULTS

VEHICLE	CID	VEH.#	GVW	% of L.D.T. SALES (by class)	HC (grams per mile)		CO (grams per mile)		NO_x (grams per mile)		F.E. (MPG)	
					As Rec'd	After Maint.	As Rec'd	After Maint.	As Rec'd	After Maint.	As Rec'd	After Maint
1 GMC	350	612	6500			3.671		61.537		3.254		11.01
2 Chev	350	642	7500			4.275		61.456		5.489		11.95
3 Chev	350	637	7500			3.545		33.411		5.123		11.49
4 Chev	350	634	6200			5.212		58.465		4.461		11.58
5 Chev	350	629	6200			8.213		38.197		3.873		10.75
6 Chev	350	631	7500			4.429		19.494		3.283		13.21
7 Chev	350	644	6200			2.952		25.584		4.603		11.73
AVERAGE - Chev 350				30.0		4.614		42.592		4.298		11.67
8 Chev	292	628	6400			3.258		22.652		3.844		12.15
AVERAGE - Chev 292				2.7		3.258		22.652		3.844		12.15
9 Chev	250	632	6400			4.165		54.489		2.419		14.17
AVERAGE - Chev 250				1.4		4.165		54.489		2.419		14.17
10 GMC	454	608	6400			6.657		51.494		2.990		9.28
11 GMC	454	474	6200			6.605		22.415		2.462		8.51
AVERAGE - GMC 454				7.4		6.631		36.955		2.726		8.90
12 Dodge	360	486	6200			4.804		31.290		3.616		11.76
13 Dodge	360	609	8000			4.916		111.513		3.734		9.43
14 Dodge	360	627	8000			6.926		83.287		2.700		10.45
AVERAGE - Dodge 360				10.4		5.549		75.363		3.350		10.55
15 Dodge	318	605	6900			4.647		49.628		5.441		10.66
AVERAGE - Dodge 318				3.5		4.647		49.628		5.441		10.66
16 Ford	360	630	6200			7.294		91.978		2.146		11.91
17 Ford	360	620	6200			6.835		65.412		2.653		11.23
18 Ford	360	624	6200			4.201		57.689		3.864		11.08
19 Ford	360	643	6200			5.100		39.273		3.874		11.77
20 Ford	360	641	7500			5.510		63.001		3.964		11.32
AVERAGE - Ford 360				22.1		5.788		63.471		3.300		11.46
21 Ford	302	625	6200			4.596		40.755		3.043		11.45
AVERAGE - Ford 302				5.3		4.596		40.755		3.043		11.45
22 Ford	390	635	7500			5.841		65.604		3.395		10.71
23 Ford	390	640	7500			5.171		60.675		3.003		11.44
AVERAGE - Ford 390				8.2		5.506		63.140		3.199		11.08
24 IHC	304	611	7200			5.516		127.835		2.487		10.15
AVERAGE - IHC 304				1.1		5.516		127.835		2.487		10.15
25 IHC	345	639	6300			5.259		38.164		2.894		10.67
AVERAGE - IHC 345				2.3		5.259		38.164		2.894		10.67
AVERAGE OF ALL 1972/73 VEHICLES (Not sales weighted)						5.184		55.012		3.545		11.19

TABLE VI-3

SUMMARY OF FTP EMISSIONS TEST RESULTS

FOR 1969 VEHICLES

VEHICLE NUMBER	TEST DATE	TEST NUMBER	HC GRAMS PER MILE	CO GRAMS PER MILE	NO_x GRAMS PER MILE	F.E. MPG	COMMENTS
404	12-29-78	02	4.586	167.100	4.070	11.26	As Received
	01-14-79	04	5.075	225.782	3.568	9.51	As Received
	01-23-79	05	5.294	244.276	2.871	9.42	As Received
	Average		4.985	212.386	3.503	10.06	
	07-22-79	13	4.138	80.662	6.504	12.23	After Maintenance-new carb.
	07-23-79	14	4.337	91.482	6.263	11.82	After Maintenance-new carb.
	Average		4.238	86.072	6.384	12.03	
418	10-03-78	02	7.899	60.574	5.821	12.28	As Received
	10-05-78	03	7.309	63.582	5.096	12.47	As Received
	10-10-78	05	6.918	64.681	5.692	12.46	As Received
	Average		7.375	62.946	5.536	12.40	
	11-05-78	06	8.170	84.800	4.283	11.83	After Maintenance
	11-07-78	07	7.532	99.605	4.483	11.48	After Maintenance
	11-08-78	08	7.865	73.524	4.295	12.13	After Maintenance
	Average		7.856	85.976	4.354	11.81	
419	11-05-78	01	8.473	150.943	1.956	11.80	As Received
	11-08-78	02	7.204	144.308	2.454	11.99	As Received
	11-10-78	03	7.498	142.156	2.722	12.06	As Received
	Average		7.725	145.802	2.377	11.95	
	11-16-78	04	7.855	148.609	2.053	12.08	After Maintenance
	11-19-78	05	7.702	147.679	2.128	12.12	After Maintenance
	11-20-78	06	7.745	151.781	2.240	11.81	After Maintenance
	Average		7.767	149.356	2.140	12.00	

TABLE VI-3

SUMMARY OF FTP EMISSIONS TEST RESULTS

FOR 1969 VEHICLES

VEHICLE NUMBER	TEST DATE	TEST NUMBER	HC GRAMS PER MILE	CO GRAMS PER MILE	NO_x GRAMS PER MILE	F.E. MPG	COMMENTS
421	11-08-78	01	8.813	93.800	2.933	11.70	As Received
	11-08-78	02	8.929	96.830	3.286	11.36	As Received
	11-09-78	03	8.687	101.743	3.157	11.24	As Received
	Average		8.810	97.458	3.125	11.43	
	11-15-78	04	7.741	64.094	2.387	12.40	After Maintenance
	11-16-78	05	9.075	65.626	3.073	12.10	After Maintenance
	11-17-78	06	7.074	52.408	3.253	12.66	After Maintenance
	Average		7.963	60.709	2.904	12.39	
425	01-17-79	01	3.316	35.018	3.078	8.92	As Received
	01-18-79	02	5.988	41.268	3.268	8.49	As Received
	01-19-79	03	4.076	38.146	3.660	8.20	As Received
	Average		4.460	38.144	3.335	8.54	
	02-03-79	04	2.775	39.874	2.831	7.55	After Maintenance
	02-05-79	06	2.864	42.591	2.401	7.78	After Maintenance
	01-06-79	07	3.200	51.202	3.070	7.56	After Maintenance
	Average		2.946	44.556	2.767	7.63	
427	08-15-79	08	7.023	69.083	2.702	12.09	Carburetor Adjusted
	08-16-79	09	6.555	71.972	2.947	11.96	Carburetor Adjusted
	Average		6.789	70.528	2.825	12.03	
428	01-15-79	01	3.646	29.952	9.154	13.44	As Received
	01-16-79	02	3.409	28.879	9.843	13.38	As Received
	01-17-79	03	3.571	27.456	9.921	13.94	As Received
	Average		3.542	28.762	9.639	13.59	
	02-13-79	07	6.807	65.002	4.711	14.92	After Maintenance-new carb.
	02-14-79	08	8.600	77.193	5.489	12.76	After Maintenance-new carb.
	02-17-79	09	7.545	68.016	6.263	13.37	After Maintenance-new carb.
	Average		7.651	70.070	5.488	13.68	

TABLE VI-3
SUMMARY OF FTP EMISSIONS TEST RESULTS
FOR 1969 VEHICLES

VEHICLE NUMBER	TEST DATE	TEST NUMBER	HC GRAMS PER MILE	CO GRAMS PER MILE	NO_x GRAMS PER MILE	F.E. MPG	COMMENTS
441	12-08-78	02	4.330	53.879	5.613	13.60	As Received
	12-09-78	03	4.062	49.023	6.098	13.92	As Received
	12-22-78	04	4.564	57.477	5.015	13.62	As Received
	Average		4.319	53.460	5.575	13.71	
	08-17-79	08	3.709	25.542	4.709	13.06	After Maintenance
	08-20-79	09	4.111	29.333	5.080	13.37	After Maintenance
	Average		3.910	27.438	4.895	13.22	
444	11-05-78	05	14.826	97.101	4.062	13.59	As Received
	11-08-78	06	16.622	106.254	4.047	12.97	As Received
	11-10-78	07	12.130	93.953	5.929	12.78	As Received
	Average		14.526	99.103	4.679	13.11	
	11-17-78	10	11.052	95.092	5.236	13.57	After Maintenance
	11-28-78	11	10.243	102.993	2.918	13.17	After Maintenance
	12-02-78	12	13.145	109.602	3.601	13.04	After Maintenance
	Average		11.480	102.562	3.918	13.26	
450	01-04-79	02	38.704	133.384	4.192	10.15	As Received
	01-08-79	03	38.562	135.833	4.945	10.15	As Received
	01-11-79	04	41.509	144.730	4.591	9.59	As Received
	Average		39.592	137.982	4.576	9.96	
	08-19-79	08	7.605	142.538	2.384	10.92	After Maintenance
	08-26-79	09	7.651	147.143	2.345	10.75	After Maintenance
	Average		7.628	144.841	2.365	10.84	

TABLE VI-3
SUMMARY OF FTP EMISSIONS TEST RESULTS
FOR 1969 VEHICLES

VEHICLE NUMBER	TEST DATE	TEST NUMBER	HC GRAMS PER MILE	CO GRAMS PER MILE	NO_x GRAMS PER MILE	F.E. MPG	COMMENTS
473	01-16-79	01	8.652	218.441	1.738	9.72	As Received
	01-17-79	02	9.173	219.106	1.841	9.53	As Received
	01-18-79	03	9.035	228.785	1.824	9.17	As Received
	Average		8.953	222.111	1.801	9.47	
	09-10-79	11	4.521	64.702	4.957	11.72	After Maintenance
	09-13-79	12	4.573	65.374	4.767	11.73	After Maintenance
	Average		4.547	65.038	4.862	11.73	
491	08-15-79	05	4.687	69.426	6.060	11.06	After Maintenance
	08-30-79	08	5.949	85.904	5.535	11.00	After Maintenance
	09-06-79	09	4.686	69.513	6.389	11.19	After Maintenance
	Average		5.107	74.948	5.995	11.08	
601	08-03-79	12	7.079	101.383	2.368	10.99	After Maintenance
	08-04-79	13	8.144	115.191	2.176	10.87	After Maintenance
	Average		7.612	108.287	2.272	10.93	
602	03-19-79	02	8.933	110.895	2.802	10.87	After Maintenance
	03-24-79	05	8.557	102.058	3.343	11.46	After Maintenance
	04-06-79	07	8.378	106.936	3.319	11.29	After Maintenance
	Average		8.623	106.630	3.155	11.21	
607	03-28-79	01	9.056	94.916	3.413	12.31	After Maintenance
	03-29-79	02	8.957	97.057	3.571	12.37	After Maintenance
	03-30-79	03	9.319	94.639	3.869	13.60	After Maintenance
	Average		9.111	95.537	3.618	12.76	

EPA AUTOMOTIVE RESEARCH

TABLE VI-3
SUMMARY OF FTP EMISSIONS TEST RESULTS
FOR 1969 VEHICLES

VEHICLE NUMBER	TEST DATE	TEST NUMBER	HC GRAMS PER MILE	CO GRAMS PER MILE	NO_x GRAMS PER MILE	F.E. MPG	COMMENTS
610	07-27-79	05	7.258	120.765	5.461	10.11	After Maintenance
	07-31-79	07	6.592	115.248	5.302	10.25	After Maintenance
	Average		6.925	118.007	5.382	10.18	
613	08-10-79	10	5.266	69.291	5.165	10.80	After Maintenance
	08-14-79	11	6.617	66.443	5.113	10.87	After Maintenance
	Average		5.942	67.867	5.139	10.84	
614	06-15-79	01	4.509	35.437	2.827	13.07	After Maintenance
	06-16-79	02	4.803	37.589	2.711	13.17	After Maintenance
	06-17-79	03	5.164	40.416	2.750	13.16	After Maintenance
	Average		4.825	37.814	2.763	13.13	
617	07-10-79	01	10.550	90.442	3.626	11.58	After Maintenance
	07-13-79	03	9.488	80.199	3.788	12.04	After Maintenance
	07-18-79	04	10.966	81.067	3.736	12.07	After Maintenance
	Average		10.335	83.903	3.717	11.90	
618	07-21-79	09	4.010	67.212	3.265	11.05	After Maintenance
	07-23-79	11	4.182	72.014	3.269	11.28	After Maintenance
	Average		4.096	69.613	3.267	11.17	
621	07-14-79	02	5.243	55.591	3.052	15.47	After Maintenance
	07-19-79	06	5.102	56.500	3.274	14.46	After Maintenance
	07-22-79	07	5.039	57.832	3.367	14.50	After Maintenance
	Average		5.128	56.641	3.231	14.81	

TABLE VI-3

SUMMARY OF FTP EMISSIONS TEST RESULTS

FOR 1969 VEHICLES

VEHICLE NUMBER	TEST DATE	TEST NUMBER	HC GRAMS PER MILE	CO GRAMS PER MILE	NO_x GRAMS PER MILE	F.E. MPG	COMMENTS
622	07-30-79	01	4.199	17.240	6.653	12.34	After Maintenance
	07-31-79	02	4.906	13.048	7.524	11.90	After Maintenance
	08-01-79	03	4.094	10.449	6.631	13.38	After Maintenance
	Average		4.400	13.579	6.936	12.54	
623	08-30-79	04	7.820	60.434	3.375	13.45	After Maintenance
	08-31-79	05	7.062	61.117	3.269	13.96	After Maintenance
	09-01-79	06	7.665	65.655	3.619	13.49	After Maintenance
	Average		7.516	62.402	3.421	13.63	

TABLE VI-4

SUMMARY OF FTP EMISSIONS TEST RESULTS

FOR 1972/73 VEHICLES

VEHICLE NUMBER	TEST DATE	TEST NUMBER	HC GRAMS PER MILE	CO GRAMS PER MILE	NO_x GRAMS PER MILE	F.E. MPG	COMMENTS
474	01-11-80	17	6.830	23.296	2.057	8.40	After Maintenance
	01-12-80	18	8.111	21.271	2.622	8.53	After Maintenance
	01-13-80	19	4.875	22.679	2.706	8.60	After Maintenance
	Average		6.605	22.415	2.462	8.51	
486	09-17-79	07	4.066	22.231	3.682	12.13	After Maintenance
	09-20-79	08	4.906	34.668	3.603	11.72	After Maintenance
	10-02-79	10	5.439	36.970	3.564	11.44	After Maintenance
	Average		4.804	31.290	3.616	11.76	
605	05-18-79	03	4.465	41.298	5.718	10.50	After Maintenance
	05-19-79	04	4.601	47.099	5.536	10.61	After Maintenence
	05-21-79	06	4.876	60.488	5.070	10.87	After Maintenance
	Average		4.647	49.628	5.441	10.66	
608	09-18-79	08	6.870	39.294	3.152	9.46	After Maintenance
	09-21-79	10	6.801	50.213	2.920	9.28	After Maintenance
	10-02-79	11	6.299	64.974	2.899	9.11	After Maintenance
	Average		6.657	51.494	2.990	9.28	
609	05-11-79	04	5.265	115.502	3.403	9.40	After Maintenance
	05-13-79	05	4.503	102.002	4.102	9.74	After Maintenance
	05-15-79	06	4.980	117.036	3.698	9.16	After Maintenance
	Average		4.916	111.513	3.734	9.43	
611	09-25-79	05	5.570	124.619	2.461	10.15	After Maintenance
	09-26-79	06	5.526	126.137	2.288	10.28	After Maintenance
	10-14-79	12	5.451	132.748	2.712	10.02	After Maintenance
	Average		5.516	127.835	2.487	10.15	

TABLE VI-4
SUMMARY OF FTP EMISSIONS TEST RESULTS
FOR 1972/73 VEHICLES

VEHICLE NUMBER	TEST DATE	TEST NUMBER	HC GRAMS PER MILE	CO GRAMS PER MILE	NO_x GRAMS PER MILE	F.E. MPG	COMMENTS
612	01-14-80	17	4.008	64.058	3.363	11.11	After Maintenance
	01-15-80	18	3.478	60.095	3.192	11.00	After Maintenance
	01-16-80	19	3.526	60.458	3.206	10.93	After Maintenance
	Average		3.671	61.537	3.254	11.01	
620	09-14-79	08	7.105	68.130	2.569	11.26	After Maintenance
	09-15-79	09	6.564	62.694	2.736	11.19	After Maintenance
	Average		6.835	65.412	2.653	11.23	
624	09-15-79	06	3.872	53.595	3.802	11.22	After Maintenance
	09-16-79	07	3.902	53.322	4.109	11.27	After Maintenance
	09-27-79	08	4.828	66.149	3.681	10.75	After Maintenance
	Average		4.201	57.689	3.864	11.08	
625	09-22-79	06	4.572	41.113	3.058	11.34	After Maintenance
	09-23-79	07	4.659	41.867	3.100	11.33	After Maintenance
	10-04-79	09	4.556	39.286	2.970	11.67	After Maintenance
	Average		4.596	40.755	3.043	11.45	
627	07-07-79	02	7.413	85.777	2.683	10.37	After Maintenance
	07-08-79	03	6.705	78.195	2.687	10.55	After Maintenance
	07-09-79	04	6.659	85.890	2.731	10.43	After Maintenance
	Average		6.926	83.287	2.700	10.45	
628	09-11-79	02	3.430	26.672	3.982	12.29	After Maintenance
	09-12-79	03	3.202	21.929	4.266	11.99	After Maintenance
	09-13-79	04	3.143	19.356	3.283	12.16	After Maintenance
	Average		3.258	22.652	3.844	12.15	

TABLE VI-4
SUMMARY OF FTP EMISSIONS TEST RESULTS

FOR 1972/73 VEHICLES

VEHICLE NUMBER	TEST DATE	TEST NUMBER	HC GRAMS PER MILE	CO GRAMS PER MILE	NO_x GRAMS PER MILE	F.E. MPG	COMMENTS
629	09-18-79	04	7.820	38.277	4.017	11.13	After Maintenance
	10-07-79	10	8.199	37.996	3.696	10.66	After Maintenance
	10-12-79	11	8.621	38.319	3.906	10.45	After Maintenance
	Average		8.213	38.197	3.873	10.75	
630	09-17-79	07	6.482	87.264	2.237	12.00	After Maintenance
	09-20-79	08	7.772	100.611	2.064	11.62	After Maintenance
	10-05-79	11	7.627	88.060	2.138	12.12	After Maintenance
	Average		7.279	91.978	2.146	11.91	
631	02-05-80	06	3.750	17.884	3.197	13.40	(After engine return
	02-06-80	07	4.921	19.379	3.325	13.24	from engine dyno
	02-07-80	08	4.617	21.218	3.327	13.00	testing)
	Average		4.429	19.494	3.283	13.21	
632	07-06-79	01	4.198	53.376	2.586	13.99	After Maintenance
	07-07-79	02	4.285	56.993	2.611	13.76	After Maintenance
	07-08-79	03	4.013	53.097	2.060	14.77	After Maintenance
	Average		4.165	54.489	2.419	14.17	
634	07-01-79	07	8.988	74.583	4.482	11.33	After Maintenance
	09-14-79	08	2.967	38.085	4.597	11.56	After Maintenance
	09-15-79	09	3.681	62.728	4.305	11.85	After Maintenance
	Average		5.212	58.465	4.461	11.58	
635	08-27-79	04	6.898	101.562	3.921	9.84	After Maintenance
	09-01-79	06	5.294	48.333	2.064	11.16	After Maintenance
	09-05-79	08	5.330	46.917	4.201	11.13	After Maintenance
	Average		5.841	65.604	3.395	10.71	

TABLE VI-4

SUMMARY OF FTP EMISSIONS TEST RESULTS

FOR 1972/73 VEHICLES

VEHICLE NUMBER	TEST DATE	TEST NUMBER	HC GRAMS PER MILE	CO GRAMS PER MILE	NO_x GRAMS PER MILE	F.E. MPG	COMMENTS
637	08-09-79	04	3.460	30.022	5.207	11.50	After Maintenance
	08-10-79	05	3.517	32.555	5.287	11.53	After Maintenance
	08-29-79	06	3.657	37.657	4.875	11.43	After Maintenance
	Average		3.545	33.411	5.123	11.49	
639	11-15-79	02	4.933	39.329	2.772	10.66	After Maintenance
	12-01-79	07	5.538	33.488	3.185	11.07	After Maintenance
	12-09-79	08	5.305	41.675	2.724	10.29	After Maintenance
	Average		5.259	38.164	2.894	10.67	
640	01-12-80	08	5.084	59.060	3.022	11.50	After Maintenance
	01-13-80	09	5.130	61.440	2.975	11.54	After Maintenance
	01-14-80	10	5.298	61.525	3.012	11.29	After Maintenance
	Average		5.171	60.675	3.003	11.44	
641	01-25-80	13	5.603	65.833	3.721	11.36	After Maintenance
	02-01-80	14	5.359	60.966	4.113	11.18	After Maintenance
	02-05-80	15	5.568	62.205	4.057	11.41	After Maintenance
	Average		5.510	63.001	3.964	11.32	
642	10-30-79	01	4.563	66.887	5.781	12.01	After Maintenance
	10-31-79	02	4.273	63.840	5.034	11.94	After Maintenance
	11-01-79	04	3.990	53.642	5.653	11.91	After Maintenance
	Average		4.275	61.456	5.489	11.95	
643	12-01-79	01	4.855	40.275	4.310	11.74	After Maintenance
	12-02-79	02	4.926	41.758	4.108	11.38	After Maintenance
	12-10-79	03	5.518	35.787	3.203	12.18	After Maintenance
	Average		5.100	39.273	3.874	11.77	

TABLE VI-4
SUMMARY OF FTP EMISSIONS TEST RESULTS

FOR 1972/73 VEHICLES

VEHICLE NUMBER	TEST DATE	TEST NUMBER	HC GRAMS PER MILE	CO GRAMS PER MILE	NO_x GRAMS PER MILE	F.E. MPG	COMMENTS
644	01-17-80	05	3.041	25.779	4.746	11.64	After Maintenance
	01-18-80	06	2.844	26.013	4.760	11.77	After Maintenance
	01-19-80	07	2.970	24.960	4.302	11.79	After Maintenance
	Average		2.952	25.584	4.603	11.73	

TABLE VI-5
IDLE EMISSIONS TEST SUMMARY
EPA CONTRACT NO. 68-03-2683

1969 Vehicles - All Data Is After Maintenance

Vehicle Number	Test Number	Date of Test	CO Percent	HC PPM CI
404	01	07-23-79	2.554	2590
	02	07-24-79	1.972	2247
Average			2.263	2418
427	08	08-15-79	2.308	3620
	09	08-16-79	3.666	4268
Average			2.987	3944
428	01	08-01-79	4.368	7184
	02	08-09-79	3.962	5924
Average			4.165	6554
441	08	08-17-79	0.359	3307
Average			0.359	3307
450	03	08-19-79	1.528	1939
	04	08-26-79	2.265	2619
Average			1.897	2279
473	05	08-08-79	2.611	2462
	06	08-13-79	2.676	2470
Average			2.644	2466
491	03	08-30-79	5.052	3529
	04	09-06-79	5.306	3593
Average			5.194	3561
601	01	08-03-79	0.206	3631
	02	08-04-79	0.265	3182
Average			0.236	3407
602	01	08-08-79	5.870	9224
	02	08-13-79	4.319	3751
Average			5.098	6487
610	01	07-31-79	5.916	4228
	02	08-01-79	5.832	4627
Average			5.874	4427
613	01	08-10-79	1.364	4038
	02	08-14-79	3.312	2989
Average			2.338	3514
614	01	06-22-79	2.991	2391
	02	06-22-79	1.839	2168
Average			2.415	2279
617	01	07-10-79	3.768	2685
	02	07-11-79	3.105	3184
Average			3.437	2935
618	03	07-19-79	4.194	4031
	04	07-23-79	1.984	2896
Average			4.089	3463
621	01	07-13-79	2.622	3016
	02	07-19-79	2.441	2932
Average			2.532	2974
622	01	07-31-79	0.660	3552
	02	08-01-79	0.711	2610
Average			0.686	3081
623	03	08-31-79	2.961	2626
	04	08-31-79	2.617	2306
Average			2.789	2466

NOTE: Vehicles 418, 419, 421, 425, 444 and 607 were disposed of prior to finalization of the Idle Test Procedure

AVERAGE OF ALL VEHICLES 2.883 3504

TABLE VI-6

IDLE EMISSIONS TEST SUMMARY

EPA CONTRACT NO. 68-03-2683

1972/73 Vehicles - All Data Is After Maintenance

Vehicle Number	Test Number	Date of Test	CO Percent	HC PPM Cl
474	01	07-14-79	2.852	16098
	02	07-15-79	3.817	17440
Average			3.335	16769
486	03	09-20-79	0.616	1095
	04	09-24-79	0.742	1170
Average			0.677	1132
605	01	09-04-79	0.758	3264
	02	09-04-79	0.399	1874
Average			0.579	2569
608	03	09-21-79	0.653	6740
	04	09-21-79	0.881	8137
Average			0.767	7438
611	03	09-25-79	0.718	1750
	04	09-26-79	0.721	1899
Average			0.720	1825
612	01	01-22-80	2.000	2496
	02	01-22-80	1.820	2597
Average			1.910	2546
620	03	09-14-80	0.156	4000
	04	09-15-79	0.171	4293
Average			0.164	4147
624	03	09-15-79	0.137	984
	04	09-16-79	0.128	939
Average			0.133	961
625	03	09-22-79	0.157	3346
	04	09-23-79	0.144	3737
Average			0.151	3539
627	01	07-06-79	1.188	2644
	02	07-08-79	1.136	2259
Average			1.162	2452
628	01	09-11-79	0.368	2447
	02	09-13-79	0.363	3275
Average			0.366	2861
629	05	09-18-79	1.259	11719
	06	09-20-79	1.188	11318
Average			1.224	11519
630	04	09-16-79	0.426	3641
	05	09-20-79	0.473	2427
Average			0.450	3034
631	01	07-02-79	0.130	4758
	02	07-03-79	0.141	5766
Average			0.136	5262
632	01	07-08-79	0.737	1663
	02	07-10-79	0.620	1778
Average			0.679	1720
634	03	09-14-79	2.888	2739
	04	09-15-79	4.917	3840
Average			3.903	3290
635	04	09-01-79	0.137	5243
	05	09-05-79	0.158	5803
Average			0.148	5523
637	03	08-10-79	0.134	1628
	04	08-10-79	0.137	1512
Average			0.136	1570
639	01	12-01-79	0.094	10141
	02	12-06-79	0.112	9574
Average			0.103	9858
640	03	01-16-80	0.139	5060
	04	01-16-80	0.139	4727
Average			0.139	4894
641	02	01-25-80	0.109	2445
	03	02-13-80	0.116	2128
Average			0.113	2286
642	01	11-01-79	1.100	2241
	02	11-02-79	0.881	2030
Average			0.991	2135
643	01	01-03-80	0.158	4049
	02	01-03-80	0.130	7162
Average			0.144	5606
644	05	01-17-80	1.900	3150
	06	01-18-80	1.710	2885
Average			1.805	3017
AVERAGE OF ALL VEHICLES			0.831	4415

NOTE: Vehicle 609 was disposed of prior to finalization of the Idle Test Procedure

APPENDIX A

SUMMARY OF VEHICLE IDENTIFICATION AND MAINTENANCE DATA

The following pages contain data on the 48 vehicles tested. Separate data sheets for each vehicle are presented.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69P200-225-01-404	ENGINE DISPLACEMENT:	225 CID
YEAR:	1969	TRANSMISSION TYPE:	3 Speed Automatic
MANUFACTURER:	Dodge	VEHICLE MILEAGE:	43,529
MODEL:	P-200	CARBURETOR NUMBER:	BBS-4630S
VIN:	3161948167	DISTRIBUTOR NUMBER:	475-3656257

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	145	140	140	140	135	140		
COMPRESSION LEAKDOWN, %:	10	14	15	13	17	18		

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	27	DEG	0	DEG
CARBURETOR:				
CURB IDLE SPEED:	500	RPM	530	RPM
FAST IDLE SPEED:	*N.O.	RPM	*N.O.	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	*N.O.	TURNS	Mid Point On	TURNS
TURNS OPEN RIGHT SCREW: . .	*N.O.	TURNS	Limiter Cap	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	*N.O.	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	*N.O.	%	3.1	%
HYDROCARBONS:	*N.O.	PPM	3575	PPM
DISTRIBUTOR:				
DWELL:	32	DEG	45	DEG
VACUUM ADVANCE:	7 DEG@	10 "HG	DIAPHRAGM REPLACED:	No
CENTRIFUGAL ADVANCE:	11 DEG@	1000 RPM	DISTRIBUTOR REPLACED:	No

(*N.O. = NOT OBSERVED)

REMARKS:

- Installed new ignition coil
- Replaced exhaust manifold
- Replaced tail pipe
- Replaced original carburetor (4341S2450)
- Replaced muffler

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69D200-318-01-418	ENGINE DISPLACEMENT:	318 CID
YEAR:	1969	TRANSMISSION TYPE:	3 Speed Automatic
MANUFACTURER:	Dodge	VEHICLE MILEAGE:	37,269
MODEL:	D200	CARBURETOR NUMBER:	3-299
VIN:	1287127909	DISTRIBUTOR NUMBER:	2642346-13-6 Remanufactured

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	135	90	135	145	150	130	140	150
COMPRESSION LEAKDOWN, %:	13	70	11	10	8	25	7	8

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	8	DEG	5	DEG
CARBURETOR:				
CURB IDLE SPEED:	*N.O.	RPM	600	RPM
FAST IDLE SPEED:	*N.O.	RPM	1400	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	*N.O.	TURNS	*N.O.	TURNS
TURNS OPEN RIGHT SCREW: . .	*N.O.	TURNS	*N.O.	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	#20	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	5/16	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	*N.O.	%	*N.O.	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	*N.O.	DEG	32	DEG

VACUUM ADVANCE: . . . . . 6.5 DEG@ 10.5 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 17.5 DEG@ 2100 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced complete exhaust system to include right exhaust manifold.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69C20-350-01-419	ENGINE DISPLACEMENT:	350 CID
YEAR:	1969	TRANSMISSION TYPE:	4 Speed Manual
MANUFACTURER:	Chevrolet	VEHICLE MILEAGE:	68,880
MODEL:	C-20	CARBURETOR NUMBER:	70292231Y
VIN:	CE249S810305	DISTRIBUTOR NUMBER:	1111500

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	175	175	195	180	185	175	185	175
COMPRESSION LEAKDOWN, %:	9	14	7	12	13	8	9	8

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	0	DEG BTDC	0	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	*N.O.	RPM	700	RPM
FAST IDLE SPEED:	*N.O.	RPM	2400	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	*N.O.	TURNS	*N.O.	TURNS
TURNS OPEN RIGHT SCREW: . .	*N.O.	TURNS	*N.O.	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	-	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.450	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	*N.O.	%	*N.O.	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	*N.O.	DEG	30	DEG

VACUUM ADVANCE: . . . . . 24 DEG@ 15.5 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 16.5 DEG@ 2000 RPM DISTRIBUTOR REPLACED: NO

(*N.O. = NOT OBSERVED)

REMARKS:

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69F250-360-01-421	ENGINE DISPLACEMENT:	360 CID
YEAR:	1969	TRANSMISSION TYPE:	4 Speed Manual
MANUFACTURER:	Ford	VEHICLE MILEAGE:	81,374
MODEL:	F250	CARBURETOR NUMBER:	C8TFAZ
VIN:	F25YKF57028	DISTRIBUTOR NUMBER:	C8TF-9023-12127

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	130	125	110	120	130	145	140	100
COMPRESSION LEAKDOWN, %:	56	52	60	64	66	42	52	68

	OBSERVED AT:	ADJUSTED TO:
IGNITION TIMING:	6 DEG BTDC	6 DEG BTDC
CARBURETOR:		
CURB IDLE SPEED:	*N.O. RPM	550 RPM
FAST IDLE SPEED:	*N.O. RPM	*N.O. RPM
IDLE MIXTURE SETTINGS:		
TURNS OPEN LEFT SCREW: . .	*N.O. TURNS	1 TURNS
TURNS OPEN RIGHT SCREW: . .	*N.O. TURNS	1 TURNS
FAST IDLE CAM POSITION: . . .	*N.O. STEP NO.	*N.O. STEP NO.
CHOKE UNLOADER:	*N.O. INCH	*N.O. INCH
IDLE EMISSIONS (GARAGE ANALYZER):		
CARBON MONOXIDE:	*N.O. %	1.3 %
HYDROCARBONS:	*N.O. PPM	2860 PPM
DISTRIBUTOR:		
DWELL:	*N.O. DEG	29 DEG
VACUUM ADVANCE:	*N.O. DEG@ - "HG	DIAPHRAGM REPLACED: No
CENTRIFUGAL ADVANCE:	*N.O. DEG@ - RPM	DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Engine had valve grind at 75,350 miles.
- Exhaust system replaced.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69F250-360-02-425	ENGINE DISPLACEMENT:	360 CID
YEAR:	1969	TRANSMISSION TYPE:	4 Speed
MANUFACTURER:	Ford	VEHICLE MILEAGE:	87,292
MODEL:	F250	CARBURETOR NUMBER:	C8TF AZ B9E 10
VIN:	F25YKF55049	DISTRIBUTOR NUMBER:	C8TF 12127 9E10

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	140	145	125	140	135	130	135	135
COMPRESSION LEAKDOWN, %:	25	32	34	80	42	78	37	40

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	*N.O.	DEG	6	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	*N.O.	RPM	650	RPM
FAST IDLE SPEED:	*N.O.	RPM	*N.O.	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	*N.O.	TURNS	1 1/8	TURNS
TURNS OPEN RIGHT SCREW: . .	*N.O.	TURNS	1 1/4	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	*N.O.	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	*N.O.	%	*N.O.	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	*N.O.	DEG		
VACUUM ADVANCE:	13	DEG@ 15 "HG	28	DEG
CENTRIFUGAL ADVANCE:	10	DEG@ 1900 RPM	DIAPHRAGM REPLACED:	No
			DISTRIBUTOR REPLACED:	No

(*N.O. = NOT OBSERVED)

REMARKS:

- Muffler and tail-pipe replaced.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69C20-350-02-427	ENGINE DISPLACEMENT:	350 CID
YEAR:	1969	TRANSMISSION TYPE:	3 Speed Standard
MANUFACTURER:	Chevrolet	VEHICLE MILEAGE:	78,776
MODEL:	C-20	CARBURETOR NUMBER:	7029223LY
VIN:	CE249S805852	DISTRIBUTOR NUMBER:	1112047 7C23 (NEW)

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	150	155	150	160	40	155	140	150
COMPRESSION LEAKDOWN, %:	17	24	13	20	88	19	18	13

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	10	DEG	0	DEG
CARBURETOR:				
CURB IDLE SPEED:	600	RPM	700	RPM
FAST IDLE SPEED:	2010	RPM	*N.O.	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	1	TURNS	1 3/4	TURNS
TURNS OPEN RIGHT SCREW: . .	2	TURNS	1 3/4	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.450	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	5.0+	%	3.1	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	30	DEG	30	DEG

VACUUM ADVANCE: . . . . . 8.5 DEG@ 15.5 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 9.0 DEG@ 2000 RPM DISTRIBUTOR REPLACED: Yes

(*N.O. = NOT OBSERVED)

REMARKS:

- Tail-pipe replaced.
- Replaced No. 5 exhaust valve and resurfaced valve seat.
- Replaced distributor 11115008H6 with new unit PN 1112047-7C23

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69P200-225-02-428	ENGINE DISPLACEMENT:	225 CID
YEAR:	1969	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	Dodge	VEHICLE MILEAGE:	59,212
MODEL:	P200	CARBURETOR NUMBER:	Carter 463052833119
VIN:	3161942613 (99026397)	DISTRIBUTOR NUMBER:	2875826

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	135	130	125	120	120	135		
COMPRESSION LEAKDOWN, %:	14	19	24	25	25	16		

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	5	DEG BTDC	0	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	*N.O.	RPM	500	RPM
FAST IDLE SPEED:	*N.O.	RPM	*N.O.	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	*N.O.	TURNS	Full lean on limiter	TURNS
TURNS OPEN RIGHT SCREW: . .	*N.O.	TURNS	-	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	*N.O.	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	*N.O	%	*N.O.	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	38	DEG	44	DEG

VACUUM ADVANCE: . . . . . 5 DEG@ 10 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 13 DEG@ 2000 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Complete exhaust system including manifold replaced.
- Replaced carburetor Carter 463052833119 unit with new unit due to worn throttle plate shaft.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69C20-250-01-441	ENGINE DISPLACEMENT:	250 CID
YEAR:	1969	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	Chevrolet	VEHICLE MILEAGE:	68,865
MODEL:	C-20	CARBURETOR NUMBER:	Monojet 7029021
VIN:	CS249S817619	DISTRIBUTOR NUMBER:	Delco 111039987 270-81C

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	160	175	175	185	185	175		
COMPRESSION LEAKDOWN, %:	30	14	14	11	15	22		

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	2	DEG BTDC	4	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	*N.O.	RPM	550	RPM
FAST IDLE SPEED:	*N.O.	RPM	2400	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	4 1/3	TURNS	1 7/8	TURNS
TURNS OPEN RIGHT SCREW: . .	N/A	TURNS	N/A	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	*N.O.	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	5.0+	%	1.6	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	*N.O.	DEG	31	DEG

VACUUM ADVANCE: . . . . . *N.O. DEG@ - "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 18 DEG@ 1950 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced entire exhaust system including manifold.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69D200-318-02-444	ENGINE DISPLACEMENT:	318 CID
YEAR:	1969	TRANSMISSION TYPE:	4 Speed
MANUFACTURER:	Dodge	VEHICLE MILEAGE:	51,389
MODEL:	D200	CARBURETOR NUMBER:	Stromberg 3-283
VIN:	1287117540	DISTRIBUTOR NUMBER:	2875800348

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	150	95	145	150	160	150	145	165
COMPRESSION LEAKDOWN, %:	8.5	N/A	8	13	7	15	19.5	12.5

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	*N.O.	DEG	*N.O.	DEG
CARBURETOR:				
CURB IDLE SPEED:	*N.O.	RPM	*N.O.	RPM
FAST IDLE SPEED:	*N.O.	RPM	*N.O.	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	*N.O.	TURNS	*N.O.	TURNS
TURNS OPEN RIGHT SCREW: . .	*N.O.	TURNS	*N.O.	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	*N.O.	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	*N.O.	%	*N.O.	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	*N.O.	DEG	*N.O.	DEG

VACUUM ADVANCE: . . . . . *N.O. DEG@ - "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . *N.O. DEG@ - RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Carburetor rebuilt at 27,000 miles.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69C20-350-03-450	ENGINE DISPLACEMENT:	350 CID
YEAR:	1969	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	Chevrolet	VEHICLE MILEAGE:	67,500
MODEL:	C-20	CARBURETOR NUMBER:	292231Y1159
VIN:	CE249J865939	DISTRIBUTOR NUMBER:	11119559E7

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	135	140	130	145	115	135	120	145
COMPRESSION LEAKDOWN, %:	18	20	38	21	54	29	47	26

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	6	DEG BTDC	4	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	700	RPM	600	RPM
FAST IDLE SPEED:	1050	RPM	1700	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	*N.O.	TURNS	2/3	TURNS
TURNS OPEN RIGHT SCREW: . .	*N.O.	TURNS	3/4	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	3	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.150	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	*N.O.	%	1.35	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	30	DEG	31	DEG

VACUUM ADVANCE: . . . . . - DEG@ - "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 17 DEG@ 2000 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced muffler and tail-pipe.
- Carburetor rebuilt by EG&G-AR.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69F250-360-04-473	ENGINE DISPLACEMENT:	360 CID
YEAR:	1969	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	Ford	VEHICLE MILEAGE:	75,808
MODEL:	F250	CARBURETOR NUMBER:	C8TFAZ
VIN:	F25YRE14951	DISTRIBUTOR NUMBER:	C8TF 12127 H 8J6

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	140	145	145	140	145	140	140	140
COMPRESSION LEAKDOWN, %:	23	16	11	23	27	21	29	23

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	5	DEG BTDC	10	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	550	RPM	550	RPM
FAST IDLE SPEED:	1400	RPM	1400	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	2 1/4	TURNS	2 3/4	TURNS
TURNS OPEN RIGHT SCREW: . .	3	TURNS	2 1/2	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	2	STEP NO.
CHOKE UNLOADER:	.165	INCH	.165	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	*N.O.	%	2.0	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	27	DEG	29	DEG
VACUUM ADVANCE:	12 DEG@	15 "HG	DIAPHRAGM REPLACED:	No
CENTRIFUGAL ADVANCE:	14.5 DEG@	2000 RPM	DISTRIBUTOR REPLACED:	No

(*N.O. = NOT OBSERVED)

REMARKS:

- Owner rebuilt carburetor at 74,500 miles.
- Tail-pipe replaced.
- Carburetor rebuilt by EG&G-AR.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	73C20-454-01-474	ENGINE DISPLACEMENT:	454 CID
YEAR:	1973	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	Chevrolet	VEHICLE MILEAGE:	51,140
MODEL:	C-20	CARBURETOR NUMBER:	7043207 QR1563
VIN:	CCZ243F366349	DISTRIBUTOR NUMBER:	1112113 2M7

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	145	130	135	130	140	130	140	130
COMPRESSION LEAKDOWN, %:	7	47	22	15	10	32	18	9

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	10	DEG BTDC	10	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	600	RPM	700	RPM
FAST IDLE SPEED:	1400	RPM	1500	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	1 1/2	TURNS	1 1/2	TURNS
TURNS OPEN RIGHT SCREW: . .	3 1/4	TURNS	1 1/2	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	.430	INCH	.430	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	0.3	%	0.6	%
HYDROCARBONS:	*N.O.	PPM	2975	PPM

DISTRIBUTOR:

DWELL: . . . . . 25 DEG 30 DEG

VACUUM ADVANCE: . . . . . *N.O. DEG@ - "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 8 DEG@ 2410 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced left exhaust manifold, header pipe and gasket.
- Replaced muffler
- Carburetor rebuilt by EG&G-AR.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	73D200-360-01-486	ENGINE DISPLACEMENT:	360 CID
YEAR:	1973	TRANSMISSION TYPE:	4 Speed
MANUFACTURER:	Dodge	VEHICLE MILEAGE:	42,696
MODEL:	D200	CARBURETOR NUMBER:	R6485A36983853442 Holley
VIN:	D24BF3S136442	DISTRIBUTOR NUMBER:	43 2 3755160

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	140	160	140	150	155	160	155	155
COMPRESSION LEAKDOWN, %:	12	8	44	10	12	8	12	8

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	4	DEG ATDC	0	DEG
CARBURETOR:				
CURB IDLE SPEED:	670	RPM	750	RPM
FAST IDLE SPEED:	2100	RPM	1900	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	1 1/2	TURNS	7/8	TURNS
TURNS OPEN RIGHT SCREW: . .	1 1/4	TURNS	7/8	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.170	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	5.0	%	0.82	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM

DISTRIBUTOR:

DWELL: . . . . . Electronic Ignition

VACUUM ADVANCE: . . . . . 9 DEG@ 14 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 14.5 DEG@ 2000 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced tail-pipe.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69F250-360-05-491	ENGINE DISPLACEMENT:	360 CID
YEAR:	1969	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	Ford	VEHICLE MILEAGE:	88,160
MODEL:	F250	CARBURETOR NUMBER:	C9TFK B 9B H
VIN:	F25YRE96086	DISTRIBUTOR NUMBER:	C8TF 12127H 9B19

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	150	150	150	125	140	150	155	150
COMPRESSION LEAKDOWN, %:	26	57	21	82	45	40	42	46

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	1	DEG BTDC	10	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	700	RPM	550	RPM
FAST IDLE SPEED:	2200	RPM	1400	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	*N.O.	TURNS	2 1/2	TURNS
TURNS OPEN RIGHT SCREW: . .	*N.O.	TURNS	2 3/4	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.165	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	*N.O.	%	4.8	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	33	DEG	30	DEG

VACUUM ADVANCE: . . . . . 11 DEG@ 15 "HG DIAPHRAGM REPLACED: Yes

CENTRIFUGAL ADVANCE: . . . . . 14 DEG@ 2000 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced vacuum advance.
- Replaced tail-pipe.
- Replaced muffler.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69-1200D-345-01-601	ENGINE DISPLACEMENT:	345 CID
YEAR:	1969	TRANSMISSION TYPE:	4 Speed
MANUFACTURER:	International Harvester	VEHICLE MILEAGE:	102,265
MODEL:	1200D	CARBURETOR NUMBER:	151786-R94-1710-5S-213 Holley
VIN:	313205H957949	DISTRIBUTOR NUMBER:	8A4359206-C91

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	125	130	130	130	125	120	130	140
COMPRESSION LEAKDOWN, %:	26	20	31	20	29	48	37	22

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	5	DEG BTDC	0	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	430	RPM	500	RPM
FAST IDLE SPEED:	1300	RPM	*N.O.	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	1 1/8	TURNS	3/4	TURNS
TURNS OPEN RIGHT SCREW: . .	3/4	TURNS	3/4	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	Manual	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	5.0+	%	2.0	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	27	DEG	N/A	DEG

VACUUM ADVANCE: . . . . . 6.5 DEG@ 12 "HG — DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 14.5 DEG@ 2000 RPM — DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced tail-pipe.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	692500-350-04-602	ENGINE DISPLACEMENT:	350 CID
YEAR:	1969	TRANSMISSION TYPE:	4 Speed
MANUFACTURER:	GMC	VEHICLE MILEAGE:	77,509
MODEL:	2500	CARBURETOR NUMBER:	7029223
VIN:	CE20C-SA 10725	DISTRIBUTOR NUMBER:	1111500 8H13

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	165	150	165	160	130	165	150	160
COMPRESSION LEAKDOWN, %:	10	16	9	10	32	14	11	10

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	2	DEG ATDC	4	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	250	RPM	500	RPM
FAST IDLE SPEED:	2100	RPM	2400	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	1 1/8	TURNS	1	TURNS
TURNS OPEN RIGHT SCREW: . .	1	TURNS	1	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.450	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	4.2	%	3.1	%
HYDROCARBONS:	*N.O.	PPM	5500	PPM
DISTRIBUTOR:				
DWELL:	31	DEG	30	DEG

VACUUM ADVANCE: . . . . . 8 DEG@ 15.75 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 13 DEG@ 2100 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced carburetor with one from 418 (7029232-0821)
- Replaced header pipe, muffler and tail-pipe.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	73D200-318-01-605	ENGINE DISPLACEMENT:	318 CID
YEAR:	1973	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	Dodge	VEHICLE MILEAGE:	68,094
MODEL:	D200	CARBURETOR NUMBER:	6317SA2913326 (New)
VIN:	D21BE3S067142	DISTRIBUTOR NUMBER:	4223656672

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	155	155	150	175	150	155	155	170
COMPRESSION LEAKDOWN, %:	24	7	12	6	24	11	11	11

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	2	DEG ATDC	5	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	765	RPM	750	RPM
FAST IDLE SPEED:	*N.O.	RPM	1700	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	Limiter Caps	TURNS	Limiter Caps	TURNS
TURNS OPEN RIGHT SCREW: . .	Mid-point	TURNS	1/8 turn from full lean	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	*N.O.	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	1.8	%	1.0	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM

DISTRIBUTOR:

DWELL: . . . . . Electronic Ignition

VACUUM ADVANCE: . . . . . 8.5 DEG@ 14.5 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 14 DEG@ 2150 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced carburetor (6364S2552380) with new unit 6317-SA-2913326.
- Replaced muffler and tail-pipe.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69C20-307-01-607	ENGINE DISPLACEMENT:	307 CID
YEAR:	1969	TRANSMISSION TYPE:	4 Speed
MANUFACTURER:	Chevrolet	VEHICLE MILEAGE:	83,732
MODEL:	C-20	CARBURETOR NUMBER:	7029105 K81L
VIN:	CE249Z827328	DISTRIBUTOR NUMBER:	1111481 8030

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	155	155	165	155	170	150	160	160
COMPRESSION LEAKDOWN, %:	14	13	8	18	6	15	9	7

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	4	DEG BTDC	2	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	420	RPM	700	RPM
FAST IDLE SPEED:	2400	RPM	2300	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	1 1/3	TURNS	1	TURNS
TURNS OPEN RIGHT SCREW: . .	1 1/3	TURNS	1	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.215	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	5.0 +	%	5.0	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	26	DEG	30	DEG

VACUUM ADVANCE: . . . . . 7 DEG@ 12 "HG — DIAPHRAGM REPLACED: Yes

CENTRIFUGAL ADVANCE: . . . . . 10 DEG@ 1600 RPM — DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced header pipe extension and tail-pipe.
- Replaced vacuum advance with new 1115355.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	732500-454-03-608	ENGINE DISPLACEMENT:	454 CID
YEAR:	1973	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	GMC	VEHICLE MILEAGE:	70,891
MODEL:	2500	CARBURETOR NUMBER:	7043207 QR1013
VIN:	TCZ243F722812	DISTRIBUTOR NUMBER:	1112113 3C22

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	150	155	150	160	165	150	155	150
COMPRESSION LEAKDOWN, %:	12	14	13	10	9	16	17	10

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	8	DEG BTDC	10	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	700	RPM	700	RPM
FAST IDLE SPEED:	1300	RPM	1600	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	3 1/4	TURNS	1	TURNS
TURNS OPEN RIGHT SCREW: . .	3	TURNS	1	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.450	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	5.0+	%	1.7	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	29	DEG	30	DEG

VACUUM ADVANCE: . . . . . 20 DEG@ 15 "HG DIAPHRAGM REPLACED: NO

CENTRIFUGAL ADVANCE: . . . . . 7 DEG@ 2400 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced transmission kickdown switch at carburetor.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	73W200-360-02-609	ENGINE DISPLACEMENT:	360 CID
YEAR:	1973	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	Dodge	VEHICLE MILEAGE:	70,669
MODEL:	W-200	CARBURETOR NUMBER:	12R-4761-B (R-6486-A) Holley
VIN:	W24BF3S083226	DISTRIBUTOR NUMBER:	3755160

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	100	120	130	110	125	110	115	125
COMPRESSION LEAKDOWN, %:	10	11	11	21	7	11	20	10

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	1	DEG ATDC	0	DEG
CARBURETOR:				
CURB IDLE SPEED:	700	RPM	700	RPM
FAST IDLE SPEED:	2300	RPM	1800	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	1 1/2	TURNS	1 1/8	TURNS
TURNS OPEN RIGHT SCREW: . .	1 1/3	TURNS	1	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.171	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	2.3	%	0.75	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM

DISTRIBUTOR:

DWELL: . . . . . Electronic Ignition

VACUUM ADVANCE: . . . . . 8 DEG@ 14 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 15.5 DEG@ 2000 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69F250-360-06-610	ENGINE DISPLACEMENT:	360 CID
YEAR:	1969	TRANSMISSION TYPE:	Automatic C-6
MANUFACTURER:	Ford	VEHICLE MILEAGE:	61,231
MODEL:	F-250	CARBURETOR NUMBER:	C8TF Z B9A30
VIN:	F25YKE96167	DISTRIBUTOR NUMBER:	C8TF 12127-H 936

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	130	140	110	130	140	130	140	130
COMPRESSION LEAKDOWN, %:	32	16	62	56	25	35	18	36

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	2	DEG BTDC	10	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	650	RPM	550	RPM
FAST IDLE SPEED:	*N.O.	RPM	1200	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	2	TURNS	2 1/2	TURNS
TURNS OPEN RIGHT SCREW: . .	2 3/4	TURNS	2 1/2	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.165	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	5.0+	%	4.9	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	32	DEG	28	DEG
VACUUM ADVANCE:	10 DEG@	15 "HG	DIAPHRAGM REPLACED:	Yes
CENTRIFUGAL ADVANCE:	13.5 DEG@	2000 RPM	DISTRIBUTOR REPLACED:	No

(*N.O. = NOT OBSERVED)

REMARKS:

- Carburetor kit installed at 60,700 miles (approx.)
- Tuned for C8TF-AZ Carburetor specs.
- After tune-up 07-19-79 carburetor kit (CT-499-D) for C8TF-AZ carburetor was installed by EG&G-AR.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	731210-304-01-611	ENGINE DISPLACEMENT:	304 CID
YEAR:	1973	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	International Harvester	VEHICLE MILEAGE:	37,601
MODEL:	1210	CARBURETOR NUMBER:	Holley 442165-C91
VIN:	3H2COCHB64287	DISTRIBUTOR NUMBER:	428095 C91 2A4

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	145	145	145	150	150	150	145	150
COMPRESSION LEAKDOWN, %:	11	16	13	12	10	10	14	11

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	2	DEG ATDC	0	DEG
CARBURETOR:				
CURB IDLE SPEED:	750	RPM	700	RPM
FAST IDLE SPEED:	1550	RPM	2000	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	1 1/2	TURNS	1	TURNS
TURNS OPEN RIGHT SCREW: . .	1 1/4	TURNS	1	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	*N.O.	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	5.0+	%	1.25	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	32	DEG	32	DEG
VACUUM ADVANCE:	1 DEG@ 8.5 "HG		DIAPHRAGM REPLACED:	Yes
CENTRIFUGAL ADVANCE:	15 DEG@ 2000 RPM		DISTRIBUTOR REPLACED:	No

(*N.O. = NOT OBSERVED)

REMARKS:

- New throttle return spring and choke shaft and lever assembly installed prior to shipment to SWRI.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	721500-350-06-612	ENGINE DISPLACEMENT:	350 CID
YEAR:	1972	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	GMC	VEHICLE MILEAGE:	90,192
MODEL:	1500 Suburban	CARBURETOR NUMBER:	7042210 QE0422
VIN:	TCE162F511173	DISTRIBUTOR NUMBER:	11120472B11

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	150	150	145	160	150	130	160	160
COMPRESSION LEAKDOWN, %:	8	13	12	12	12	18	9	5

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	3	DEG BTDC	8	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	700	RPM	600	RPM
FAST IDLE SPEED:	1300	RPM	1500	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	3 3/4	TURNS	1 1/4	TURNS
TURNS OPEN RIGHT SCREW: . .	3 3/4	TURNS	1 1/8	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.450	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	4.7	%	1.4	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	31	DEG	*N.O.	DEG

VACUUM ADVANCE: . . . . . 14 DEG@ 15.5 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 11 DEG@ 2400 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Owner had rebuilt the carburetor
- Replaced header pipe, muffler and tail-pipe.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69F250-360-07-613	ENGINE DISPLACEMENT:	360 CID
YEAR:	1969	TRANSMISSION TYPE:	Automatic C-6
MANUFACTURER:	Ford	VEHICLE MILEAGE:	85,309
MODEL:	F-250	CARBURETOR NUMBER:	C8TF Z B9E1
VIN:	F25YKF53779	DISTRIBUTOR NUMBER:	C8TF 12127H 9 2S

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	125	130	115	130	130	125	130	135
COMPRESSION LEAKDOWN, %:	20	24	50	46	27	30	20	20

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	14	DEG BTDC	10	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	650	RPM	650	RPM
FAST IDLE SPEED:	1400	RPM	1400	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	*N.O.	TURNS	2 1/4	TURNS
TURNS OPEN RIGHT SCREW: . .	*N.O.	TURNS	2 1/2	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.150	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	*N.O.	%	3.9	%
HYDROCARBONS:	*N.O.	PPM	3750	PPM
DISTRIBUTOR:				
DWELL:	31	DEG	28	DEG

VACUUM ADVANCE: . . . . . 12 DEG@ 15 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 14.5 DEG@ 2000 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Carburetor was rebuilt at 82,000 miles.
- Installed a new muffler and tail-pipe.
- Rebuilt carburetor by EG&G-AR.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	692500-250-02-614	ENGINE DISPLACEMENT:	250 CID
YEAR:	1969	TRANSMISSION TYPE:	3 Speed Standard
MANUFACTURER:	GMC	VEHICLE MILEAGE:	82,918
MODEL:	2500	CARBURETOR NUMBER:	Rochester 7040025 (New)
VIN:	CS20DSA20133	DISTRIBUTOR NUMBER:	1110464 9K22

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	170	175	175	170	170	170		
COMPRESSION LEAKDOWN, %:	32	16	24	20	26	20		

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	0	DEG BTDC	4	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	675	RPM	500	RPM
FAST IDLE SPEED:	N/A	RPM	2400	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	2 1/2	TURNS	2 1/4	TURNS
TURNS OPEN RIGHT SCREW: . .	N/A	TURNS	N/A	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.350	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	4.9	%	4.0	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	32	DEG	33	DEG

VACUUM ADVANCE: . . . . . 10 DEG@ 17 "HG — DIAPHRAGM REPLACED: Yes

CENTRIFUGAL ADVANCE: . . . . . 19 DEG@ 1950 RPM — DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Valve regrind - 1970 - 10,000 miles
- Carburetor exhanged by owner 03/79
- Replaced muffler and tail-pipe.
- Removed rebuilt carburetor 7028006 - installed 7040025.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69C20-292-01-617	ENGINE DISPLACEMENT:	292 CID
YEAR:	1969	TRANSMISSION TYPE:	4 Speed
MANUFACTURER:	Chevrolet	VEHICLE MILEAGE:	59,000
MODEL:	C-20	CARBURETOR NUMBER:	Rochester 7029022 219 8 ID
VIN:	CS249S806287	DISTRIBUTOR NUMBER:	1118442 R3D6

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	154	145	145	150	160	160		
COMPRESSION LEAKDOWN, %:	17	12	24	10	35	10		

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	5	DEG ATDC	0	DEG
CARBURETOR:				
CURB IDLE SPEED:	625	RPM	700	RPM
FAST IDLE SPEED:	1200	RPM	2400	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	1 3/4	TURNS	1 1/8	TURNS
TURNS OPEN RIGHT SCREW: . .	N/A	TURNS	N/A	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.350	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	2.4	%	2.0	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	25	DEG	34	DEG

VACUUM ADVANCE: . . . . . 12 DEG@ 16 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 23 DEG@ 2000 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Distributor adjusted to PN 1110467 Specifications.
- Installed used carburetor diaphragm and rod link.
- Installed new idle solenoid 1114421.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69E300-302-01-618	ENGINE DISPLACEMENT:	302 CID
YEAR:	1969	TRANSMISSION TYPE:	Automatic C-4
MANUFACTURER:	Ford	VEHICLE MILEAGE:	107263
MODEL:	E-300	CARBURETOR NUMBER:	C9UF-B
VIN:	E32GHE26434	DISTRIBUTOR NUMBER:	C9UF-12127-D 8L15

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	125	135	125	125	125	130	125	130
COMPRESSION LEAKDOWN, %:	24	25	24	32	32	34	34	22

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	6	DEG BTDC	6	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	700	RPM	550	RPM
FAST IDLE SPEED:	1000	RPM	1000	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	3/4	TURNS	1 3/4	TURNS
TURNS OPEN RIGHT SCREW: . .	2 1/2	TURNS	2	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	.060	STEP NO.
CHOKE UNLOADER:	*.NO.	INCH	1/8	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	0.2	%	3.8	%
HYDROCARBONS:	*N.O.	PPM	3270	PPM
DISTRIBUTOR:				
DWELL:	26	DEG	28	DEG

VACUUM ADVANCE: . . . . . 10.5 DEG@ 15 "HG — DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 13 DEG@ 2000 RPM — DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Owner had carburetor rebuilt 4/78.
- Carburetor rebuilt by EG&G-AR.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	72F250-360-01-620	ENGINE DISPLACEMENT:	360 CID
YEAR:	1972	TRANSMISSION TYPE:	4 Speed
MANUFACTURER:	Ford	VEHICLE MILEAGE:	71,297
MODEL:	F-250	CARBURETOR NUMBER:	D2TF-JB
VIN:	F25YKN01148	DISTRIBUTOR NUMBER:	D2TF-12127-MA 1K7

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	145	140	140	136	140	136	130	130
COMPRESSION LEAKDOWN, %:	14	20	19	45	26	26	17	24

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	6	DEG BTDC	6	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	725	RPM	650	RPM
FAST IDLE SPEED:	1400	RPM	1500	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	2 3/4	TURNS	1 3/4	TURNS
TURNS OPEN RIGHT SCREW: . .	1 3/4	TURNS	1 3/4	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.160	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	2.5	%	0.2	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	32	DEG	28	DEG

VACUUM ADVANCE: . . . . . 16 DEG@ 15 "HG — DIAPHRAGM REPLACED: Yes

CENTRIFUGAL ADVANCE: . . . . . 18 DEG@ 2000 RPM — DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Owner had carburetor rebuilt and distributor plate replaced at 68,000 miles (approx.)
- Replaced tailpipe

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69C20-307-02-621	ENGINE DISPLACEMENT:	307 CID
YEAR:	1969	TRANSMISSION TYPE:	4 Speed
MANUFACTURER:	Chevrolet	VEHICLE MILEAGE:	82,410
MODEL:	C-20	CARBURETOR NUMBER:	7029105
VIN:	CE249F894011	DISTRIBUTOR NUMBER:	1111481 9E6

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	180	185	180	180	190	190	185	180
COMPRESSION LEAKDOWN, %:	24	21	24	25	16	20	22	24

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	3	DEG ATDC	2	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	650	RPM	700	RPM
FAST IDLE SPEED:	1500	RPM	1825	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	1 1/3	TURNS	1 1/3	TURNS
TURNS OPEN RIGHT SCREW: . .	1	TURNS	1	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.219	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	1.3	%	2.25	%
HYDROCARBONS:	*N.O.	PPM	3250	PPM
DISTRIBUTOR:				
DWELL:	31	DEG	28	DEG

VACUUM ADVANCE: . . . . . 8 DEG@ 12 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 10.5 DEG@ 1600 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Owner had carburetor rebuilt
- Replaced tailpipe
- Carburetor replaced with new unit (same part number)

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69E300-302-02-622	ENGINE DISPLACEMENT:	302 CID
YEAR:	1969	TRANSMISSION TYPE:	Automatic C-4
MANUFACTURER:	Ford	VEHICLE MILEAGE:	63,399
MODEL:	E-300	CARBURETOR NUMBER:	C9UF B/C 8J16
VIN:	E34GHE14167	DISTRIBUTOR NUMBER:	C7OF-12127-B BE24

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	148	150	149	150	150	149	132	150
COMPRESSION LEAKDOWN, %:	16	27	26	24	17	14	30	16

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	8	DEG BTDC	6	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	650	RPM	550	RPM
FAST IDLE SPEED:	1100	RPM	1000	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	Limiter Caps	TURNS	Not Adjusted	TURNS
TURNS OPEN RIGHT SCREW: . .	Limiter Caps	TURNS	Not Adjusted	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	*N.O.	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	2.25	%	2.25	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	27	DEG	31	DEG

VACUUM ADVANCE: . . . . . 11 DEG@ 15 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 17 DEG@ 2000 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced exhaust header pipe

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	69C20-250-03-623	ENGINE DISPLACEMENT:	250 CID
YEAR:	1969	TRANSMISSION TYPE:	3 Speed Standard
MANUFACTURER:	Chevrolet	VEHICLE MILEAGE:	70,294
MODEL:	C-20	CARBURETOR NUMBER:	7029021 2B9-8-1C
VIN:	CS249S806758	DISTRIBUTOR NUMBER:	1110465 (new)

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	165	160	165	170	150	160		
COMPRESSION LEAKDOWN, %:	18	19	18	16	28	20		

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	0	DEG BTDC	0	DEG
CARBURETOR:				
CURB IDLE SPEED:	650	RPM	700	RPM
FAST IDLE SPEED:	N/A	RPM	2400	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	1	TURNS	3/4	TURNS
TURNS OPEN RIGHT SCREW: . .	N/A	TURNS	N/A	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.350	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDL:	5.0	%	2.6	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	30	DEG	32	DEG

VACUUM ADVANCE: . . . . . 11.25 DEG@ 16 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 21 DEG@ 1950 RPM DISTRIBUTOR REPLACED: Yes

(*N.O. = NOT OBSERVED)

REMARKS:

- Valve regrind in 1974 at approx. 50,000 miles
- Distributor had been rebuilt or replaced.
- Replaced distributor (1110293 8F5) with new 1110465.
- Replaced tailpipe.
- Replaced choke rod.
- Installed auto choke to accelerator lever rod.
- Installed new choke coil spring.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	72F250-360-02-624	ENGINE DISPLACEMENT:	360 CID
YEAR:	1972	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	Ford	VEHICLE MILEAGE:	59,481
MODEL:	F-250	CARBURETOR NUMBER:	D2TF-KA A2F 7
VIN:	F25YKP45618	DISTRIBUTOR NUMBER:	D2TF-12127-MA 2F2

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	130	145	140	133	145	137	145	130
COMPRESSION LEAKDOWN, %:	36	26	30	60	30	32	21	64

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	6	DEG BTDC	6	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	600	RPM	550	RPM
FAST IDLE SPEED:	1800	RPM	1500	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	2 1/2	TURNS	1 1/2	TURNS
TURNS OPEN RIGHT SCREW: . .	1 1/2	TURNS	1 1/2	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.160	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	1.6	%	0.13	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	32	DEG	*N.O.	DEG

VACUUM ADVANCE: . . . . . 9 DEG@ 15 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 22 DEG@ 2000 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced muffler and tailpipe.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	72E300-302-01-625	ENGINE DISPLACEMENT:	302 CID
YEAR:	1972	TRANSMISSION TYPE:	Automatic C-4
MANUFACTURER:	Ford	VEHICLE MILEAGE:	98,900
MODEL:	E300	CARBURETOR NUMBER:	CA-941-C(new)
VIN:	F34GHN43332	DISTRIBUTOR NUMBER:	D2DF-12127-FA

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	130	134	135	140	145	135	130	145
COMPRESSION LEAKDOWN, %:	23	30	28	28	21	28	18	21

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	0	DEG	6	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	600	RPM	500	RPM
FAST IDLE SPEED:	1800	RPM	1400	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	2 1/4	TURNS	1 3/4	TURNS
TURNS OPEN RIGHT SCREW: . .	2 3/4	TURNS	1 3/4	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.140	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	5.0 +	%	0.20	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	32	DEG	28	DEG

VACUUM ADVANCE: . . . . . 5 DEG@ 15 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 11 DEG@ 2000 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Original carburetor had no number. Correct carburetor is DZUF-9510-EA. Replaced carburetor with service replacement carburetor (CA-941-C).
- Replaced header pipe, muffler, tailpipe.
- Distributor curve corrected to specifications.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	73W200-360-03-627	ENGINE DISPLACEMENT:	360 CID
YEAR:	1973	TRANSMISSION TYPE:	4 Speed
MANUFACTURER:	Dodge	VEHICLE MILEAGE:	63,195
MODEL:	W-200	CARBURETOR NUMBER:	6485 A 3698385 C313
VIN:	W24BF3S111186	DISTRIBUTOR NUMBER:	3755160

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	130	130	126	120	130	150	130	135
COMPRESSION LEAKDOWN, %:	10	10	9	9	8	8	9	10

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	0	DEG BTDC	0	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	650	RPM	750	RPM
FAST IDLE SPEED:	1500	RPM	1900	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	2 1/2	TURNS	1 3/8	TURNS
TURNS OPEN RIGHT SCREW: . .	2 1/4	TURNS	1 3/8	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.170	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	5.0 +	%	1.0	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	*N.O.	DEG	*N.O.	DEG

VACUUM ADVANCE: . . . . . 8 DEG@ 14 "HG — DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 21 DEG@ 1900 RPM — DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced Y-pipe, muffler and tailpipe.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	73C20-292-01-628	ENGINE DISPLACEMENT:	292 CID
YEAR:	1973	TRANSMISSION TYPE:	4 Speed
MANUFACTURER:	Chevrolet	VEHICLE MILEAGE:	48,484
MODEL:	C-20	CARBURETOR NUMBER:	7043026 (New)
VIN:	CCT243Z118632	DISTRIBUTOR NUMBER:	1110486 (New)

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	175	175	180	179	180	177		
COMPRESSION LEAKDOWN, %:	18	18	14	16	12	11		

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	6	DEG BTDC	4	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	500	RPM	700	RPM
FAST IDLE SPEED:	1000	RPM	2400	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	Limiter Caps	TURNS	Limiter Caps	TURNS
TURNS OPEN RIGHT SCREW: . .	Full Rich	TURNS	Mid-point	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	3	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.600	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	1.7	%	1.5	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	25	DEG	32	DEG
VACUUM ADVANCE:	10 DEG@	13 "HG	DIAPHRAGM REPLACED:	Yes
CENTRIFUGAL ADVANCE:	16 DEG@	2175 RPM	DISTRIBUTOR REPLACED:	Yes

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced carburetor 7043326 with new 7043026.
- Replaced distributor 1110518 with new 1110486.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	72C20-350-08-629	ENGINE DISPLACEMENT:	350 CID
YEAR:	1972	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	Chevrolet	VEHICLE MILEAGE:	84,183
MODEL:	C20	CARBURETOR NUMBER:	7042209 QC2371
VIN:	CCE242F309950	DISTRIBUTOR NUMBER:	1112047

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	165	170	165	165	170	170	170	167
COMPRESSION LEAKDOWN, %:	12	10	12	11	10	10	12	12

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	8	DEG BTDC	8	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	650	RPM	600	RPM
FAST IDLE SPEED:	1350	RPM	1500	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	2 1/4	TURNS	2 1/4	TURNS
TURNS OPEN RIGHT SCREW: . .	2 1/4	TURNS	2 1/4	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.450	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	5.0 +	%	1.7	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	32	DEG	28	DEG

VACUUM ADVANCE: . . . . . 15 DEG@ 15.5 "HG — DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 11 DEG@ 2400 RPM — DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	72F250-360-03-630	ENGINE DISPLACEMENT:	360 CID
YEAR:	1972	TRANSMISSION TYPE:	4 Speed
MANUFACTURER:	Ford	VEHICLE MILEAGE:	92,152
MODEL:	F-250	CARBURETOR NUMBER:	CA-938D D4PZ-9510-BG (New)
VIN:	F25YKN50683	DISTRIBUTOR NUMBER:	D2TF-MA (New)

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	140	150	145	140	145	160	130	155
COMPRESSION LEAKDOWN, %:	48	28	49	41	44	69	50	54

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	6	DEG	6	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	650	RPM	650	RPM
FAST IDLE SPEED:	1275	RPM	1500	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	2 1/8	TURNS	1 1/2	TURNS
TURNS OPEN RIGHT SCREW: . .	2 1/8	TURNS	1 1/2	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.160	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	1.3	%	0.5	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	30	DEG	28	DEG
VACUUM ADVANCE:	8.5 DEG@	15 "HG	DIAPHRAGM REPLACED:	Yes
CENTRIFUGAL ADVANCE:	15.5 DEG@	2000 RPM	DISTRIBUTOR REPLACED:	Yes

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced tailpipe.
- Replaced carburetor, no Part Number on original.
- Original distributor No. D5TF-SA13

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	72C20-350-09-631	ENGINE DISPLACEMENT:	350 CID
YEAR:	1972	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	Chevrolet	VEHICLE MILEAGE:	91,098
MODEL:	C-20	CARBURETOR NUMBER:	7042208 (New)
VIN:	CCE242S107288	DISTRIBUTOR NUMBER:	112047

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	150	170	165	160	160	165	165	170
COMPRESSION LEAKDOWN, %:	24	10	11	20	22	12	10	8

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	8	DEG BTDC	8	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	600	RPM	600	RPM
FAST IDLE SPEED:	1350	RPM	1500	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	2 1/4	TURNS	1	TURNS
TURNS OPEN RIGHT SCREW: . .	2 1/2	TURNS	1	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.450	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	5.0 +	%	0.15	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	30	DEG	30	DEG

VACUUM ADVANCE: . . . . . 15 DEG@ 15.5 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 11 DEG@ 2400 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced tailpipe.
- Replaced orginal carburetor Part Number 7028212 with new unit Part Number 7042208.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	73C20-250-01-632	ENGINE DISPLACEMENT:	250 CID
YEAR:	1973	TRANSMISSION TYPE:	3 Speed
MANUFACTURER:	Chevrolet	VEHICLE MILEAGE:	76,919
MODEL:	C-20	CARBURETOR NUMBER:	7043025 064 3 1E
VIN:	CCQ243F422319	DISTRIBUTOR NUMBER:	1110489 2C14

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	155	170	170	175	160	180		
COMPRESSION LEAKDOWN, %:	22	21	15	20	19	28		

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	4	DEG BTDC	4	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	600	RPM	700	RPM
FAST IDLE SPEED:	1600	RPM	2400	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	1 3/4	TURNS	2	TURNS
TURNS OPEN RIGHT SCREW: . .	N/A	TURNS	N/A	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	3	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.600	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	1.85	%	1.05	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	30	DEG	32	DEG

VACUUM ADVANCE: . . . . . 23 DEG@ 16 "HG

CENTRIFUGAL ADVANCE: . . . . . 17 DEG@ 2300 RPM

DIAPHRAGM REPLACED: Yes

DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced intake/exhaust manifold gaskets, heat riser valve and muffler - welded muffler connections.
- Replaced idle solenoid valve (C.E.C.) 7040316.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	72C20-350-10-634	ENGINE DISPLACEMENT:	350 CID
YEAR:	1972	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	Chevrolet	VEHICLE MILEAGE:	99,861
MODEL:	C-20	CARBURETOR NUMBER:	7042208 QC
VIN:	CCE242S123031	DISTRIBUTOR NUMBER:	1112047

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	135	175	175	170	175	175	175	175
COMPRESSION LEAKDOWN, %:	68	8	16	10	10	10	12	8

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	8	DEG BTDC	8	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	600	RPM	600	RPM
FAST IDLE SPEED:	1400	RPM	1500	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	3 3/4	TURNS	2 1/4	TURNS
TURNS OPEN RIGHT SCREW: . .	4 1/3	TURNS	2 1/2	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.450	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	5.0 +	%	1.0	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	30	DEG	29	DEG

VACUUM ADVANCE: . . . . . 14 DEG@ 15.5 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 11 DEG@ 2400 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Welded exhaust leak at header pipe.
- Changed carburetor base gasket.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	72F250-390-01-635	ENGINE DISPLACEMENT:	390 CID
YEAR:	1972	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	Ford	VEHICLE MILEAGE:	78,883
MODEL:	F-250	CARBURETOR NUMBER:	D2TF-KA
VIN:	F25HKN00326	DISTRIBUTOR NUMBER:	D2TF-12127-MA

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	150	140	150	165	165	160	160	155
COMPRESSION LEAKDOWN, %:	74	62	44	40	54	32	35	32

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	6	DEG	6	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	550	RPM	550	RPM
FAST IDLE SPEED:	1700	RPM	1500	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	2	TURNS	1 3/4	TURNS
TURNS OPEN RIGHT SCREW: . .	3	TURNS	2	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.140	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	4.8	%	0.2	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	28	DEG	28	DEG

VACUUM ADVANCE: . . . . . 8.5 DEG@ 15 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 14.5 DEG@ 2000 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced muffler and tailpipe.
- Carburetor rebuilt by EG&G-AR.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	72C20-350-11-637	ENGINE DISPLACEMENT:	350 CID
YEAR:	1972	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	Chevrolet	VEHICLE MILEAGE:	97,917
MODEL:	C-20	CARBURETOR NUMBER:	7042208
VIN:	CCE242S184011	DISTRIBUTOR NUMBER:	1112047 2B4

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	175	170	170	180	145	175	175	180
COMPRESSION LEAKDOWN, %:	8	9	8	9	17	8	9	8

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	9	DEG BTDC	8	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	N/A	RPM	600	RPM
FAST IDLE SPEED:	N/A	RPM	1500	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	3 3/4	TURNS	1 1/4	TURNS
TURNS OPEN RIGHT SCREW: . .	3 3/4	TURNS	1 1/2	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.450	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	4.4	%	.15	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	*N.O.	DEG	30	DEG

VACUUM ADVANCE: . . . . . 15 DEG@ 15.5 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 11 DEG@ 2400 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced muffler and tailpipe.
- Removed water injection system and restored vacuum lines to OEM routing.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	731210-345-03-639	ENGINE DISPLACEMENT:	345 CID
YEAR:	1973	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	International Harvester	VEHICLE MILEAGE:	106,634
MODEL:	1210	CARBURETOR NUMBER:	454580-C91 (New)
VIN:	3H2COCHB80282	DISTRIBUTOR NUMBER:	433142C91 0993

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	165	150	160	160	165	160	150	155
COMPRESSION LEAKDOWN, %:	8	8	11	8	8	8	8	20

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	15	DEG BTDC	0	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	550	RPM	700	RPM
FAST IDLE SPEED:	*N.O.	RPM	2000	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	*N.O.	TURNS	Limiter Cap	TURNS
TURNS OPEN RIGHT SCREW: . .	*N.O.	TURNS	Limiter Cap	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	*N.O.	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	*N.O.	%	*N.O.	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	26	DEG	*N.O.	DEG
VACUUM ADVANCE:	2.33	DEG@ 8.5 "HG	DIAPHRAGM REPLACED:	No
CENTRIFUGAL ADVANCE:	15	DEG@ 2000 RPM	DISTRIBUTOR REPLACED:	No

(*N.O. = NOT OBSERVED)

REMARKS:

- Original carburetor number 1850-1-2028 replaced with new unit Part Number 454580-C91
- Installed single exhaust system - Y-pipe, muffler and tailpipe.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	72F250-390-02-640	ENGINE DISPLACEMENT:	390 CID
YEAR:	1972	TRANSMISSION TYPE:	4 Speed Manual
MANUFACTURER:	Ford	VEHICLE MILEAGE:	92,121
MODEL:	F250	CARBURETOR NUMBER:	D2TFJB-A2D19
VIN:	F25HCP20119	DISTRIBUTOR NUMBER:	D2TF-12127MA 2D15

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	155	155	150	125	140	150	145	145
COMPRESSION LEAKDOWN, %:	30	37	57	45	73	38	34	30

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	4	DEG BTDC	6	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	540	RPM	650	RPM
FAST IDLE SPEED:	1350	RPM	1500	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	*N.O.	TURNS	1 7/8	TURNS
TURNS OPEN RIGHT SCREW: . .	*N.O.	TURNS	1 3/4	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	.160	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	*N.O.	%	1.4	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	29	DEG	29	DEG
VACUUM ADVANCE:	7.5	DEG@ 15 "HG	DIAPHRAGM REPLACED:	Yes
CENTRIFUGAL ADVANCE:	8.5	DEG@ 1500 RPM	DISTRIBUTOR REPLACED:	Yes

(*N.O. = NOT OBSERVED)

REMARKS:

- Rebuilt carburetor at EG&G-AR.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	72F250-360-04-641	ENGINE DISPLACEMENT:	360 CID
YEAR:	1972	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	Ford	VEHICLE MILEAGE:	81,382
MODEL:	F250	CARBURETOR NUMBER:	D2TFKA
VIN:	F25YCP23691	DISTRIBUTOR NUMBER:	DD-342, D2TZ-12370-G, SE (Rebuilt)

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	150	140	135	140	130	150	150	120
COMPRESSION LEAKDOWN, %:	21	70	64	68	66	21	46	42

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	8	DEG BTDC	6	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	700	RPM	550	RPM
FAST IDLE SPEED:	2100	RPM	1500	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	*N.O.	TURNS	Limiter Cap	TURNS
TURNS OPEN RIGHT SCREW: . .	*N.O.	TURNS	Limiter Cap	TURNS
FAST IDLE CAM CLEARANCE: . . .	*N.O.	STEP NO.	0.140	INCH
CHOKE UNLOADER:	*N.O.	INCH	0.160	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	*N.O.	%	*N.O.	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	30	DEG	26	DEG

VACUUM ADVANCE: . . . . . 7.5 DEG@ 15 "HG DIAPHRAGM REPLACED: Yes

CENTRIFUGAL ADVANCE: . . . . . 14 DEG@ 1500 RPM DISTRIBUTOR REPLACED: Yes

(*N.O. = NOT OBSERVED)

REMARKS:

- Original distributor Number D2TF-12127-MA
- Installed new D2TF-KA carburetor on January 22, 1980.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	72C20-350-12-642	ENGINE DISPLACEMENT:	350 CID
YEAR:	1972	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	Chevrolet	VEHICLE MILEAGE:	78,743
MODEL:	C-20	CARBURETOR NUMBER:	7042208-QC
VIN:	CCE242A143237	DISTRIBUTOR NUMBER:	1112047 2A19

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	155	155	165	165	150	160	165	160
COMPRESSION LEAKDOWN, %:	14	8	10	9	22	12	8	10

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	8	DEG BTDC	8	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	600	RPM	600	RPM
FAST IDLE SPEED:	1700	RPM	1500	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	2	TURNS	1 1/8	TURNS
TURNS OPEN RIGHT SCREW: . .	1 1/4	TURNS	1 1/2	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	2nd.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	0.450	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	2.6	%	3.34	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	30	DEG	30	DEG

VACUUM ADVANCE: . . . . . 7.5 DEG@ 15.5 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 6 DEG@ 1200 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced muffler and tailpipe.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	72F250-360-05-643	ENGINE DISPLACEMENT:	360 CID
YEAR:	1972	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	Ford	VEHICLE MILEAGE:	77,161
MODEL:	F-250	CARBURETOR NUMBER:	D2TF-KA
VIN:	F25YLM64393	DISTRIBUTOR NUMBER:	D2TF-12127-MA

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	135	140	70	75	135	140	100	140
COMPRESSION LEAKDOWN, %:	36	28	56	46	34	60	64	22

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	4	DEG BTDC	6	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	600	RPM	550	RPM
FAST IDLE SPEED:	1300	RPM	1500	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	4	TURNS	1 1/4	TURNS
TURNS OPEN RIGHT SCREW: . .	2 3/4	TURNS	1 1/4	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	*N.O.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	0.160	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	8.0	%	.24	%
HYDROCARBONS:	*N.O.	PPM	*N.O.	PPM
DISTRIBUTOR:				
DWELL:	32	DEG	29	DEG

VACUUM ADVANCE: . . . . . 9.25 DEG@ 15 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 10 DEG@ 1500 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced exhaust valves on #4, #7, lapped intake and exhaust valves on #3, #4, #7.
- Installed new rings on #3, #4, #7 pistons.
- Compression after repairs 1 thru 8 - 130, 135, 125, 140, 145, 140, 140, 120 psi.

SUMMARY OF VEHICLE IDENTIFICATION & MAINTENANCE DATA

VEHICLE TEST NUMBER:	72C20-350-13-644	ENGINE DISPLACEMENT:	350 CID
YEAR:	1972	TRANSMISSION TYPE:	Automatic
MANUFACTURER:	Chevrolet	VEHICLE MILEAGE:	87,617
MODEL:	C-20	CARBURETOR NUMBER:	7042208QC
VIN:	CCE242S120075	DISTRIBUTOR NUMBER:	1112047 1J3

CYL. NO.	1	2	3	4	5	6	7	8
COMPRESSION PRESSURE, PSI: . . .	150	155	150	145	140	155	160	155
COMPRESSION LEAKDOWN, %:	9	14	20	23	25	12	17	15

	OBSERVED AT:		ADJUSTED TO:	
IGNITION TIMING:	9	DEG BTDC	8	DEG BTDC
CARBURETOR:				
CURB IDLE SPEED:	450	RPM	600	RPM
FAST IDLE SPEED:	1050	RPM	1500	RPM
IDLE MIXTURE SETTINGS:				
TURNS OPEN LEFT SCREW: . .	*N.O.	TURNS	Limiter	TURNS
TURNS OPEN RIGHT SCREW: . .	*N.O.	TURNS	Caps	TURNS
FAST IDLE CAM POSITION: . . .	*N.O.	STEP NO.	2nd.	STEP NO.
CHOKE UNLOADER:	*N.O.	INCH	0.450	INCH
IDLE EMISSIONS (GARAGE ANALYZER):				
CARBON MONOXIDE:	*N.O.	%	.163	%
HYDROCARBONS:	*N.O.	PPM	3460	PPM
DISTRIBUTOR:				
DWELL:	31	DEG	29	DEG

VACUUM ADVANCE: . . . . . 7.75 DEG@ 15.5 "HG DIAPHRAGM REPLACED: No

CENTRIFUGAL ADVANCE: . . . . . 6 DEG@ 1200 RPM DISTRIBUTOR REPLACED: No

(*N.O. = NOT OBSERVED)

REMARKS:

- Replaced muffler, tailpipe and header pipe.
- Replaced carburetor.

APPENDIX B

CHRONOLOGICAL VEHICLE STATUS LOG

The log presented here, documents key dates and milestones for all vehicles involved in this testing program.

EG&G Automotive Research, Inc.

1969 Light Duty Trucks
EPA Contract 68-03-2683

VEHICLE I.D. NO.	INITIAL CONTACT (DATE)	VEHICLE/ ENGINE	OWNER'S NAME	EG & G-AR INSPECTION (DATE)	VEHICLE PURCHASE STATUS (DATE)	PRE-TEST PREP. (DATE)	AS REC'D EMISSIONS (DATE)	ENGINE TUNE-UP (DATE)	EMISSIONS TEST (DATE)	ENGINE REMOVED (DATE)	ENGINE SHIPPED (DATE)	ENGINE RETURN (DATE)	VEHICLE DISPOSED (DATE)
69P200-225-01-404	11-9-78	1969 Dodge (P-200) 225 CID 7200 GVW	Frank Stanish	11-9-78	11-16-78	12-7-78	1-30-79	2-16-79	4-13-79	Released by EPA	---	---	10-25-79
69D200-318-01-418	8-22-78	1969 Dodge (D-200) 318 CID 7500 GVW	James W. Stanley	8-23-78	8-24-78	9-7-78	10-10-78	10-13-78	11-9-78	2-10-79	3-6-79	6-13-79	11-1-79
69C20-350-01-419	9-20-78	1969 Chev (C-20) 350 CID 7500 GVW	William Cornett	9-21-78	9-28-78	10-3-78	11-10-78	11-16-78	11-29-78	Released by EPA	---	---	12-29-78
69F250-360-01 421	9-15-78	1969 Ford (F-250) 360 CID 6900 GVW	Donald Woollett	10-2-78	10-3-78	10-30-78	11-9-78	11-14-78	12-6-78	12-9-78	1-16-79	Released 4-9-80	11-1-79
69F250-390-01 424	10-25-78	1969 Ford (F-250) 390 CID 7500 GVW	Charles E. Hubbard	10-30-78	11-1-78	Rejected	---	---	---	---	---	---	12-19-78
69F250-360-02-425	10-25-78	1969 Ford (F-250) 360 CID 6200 GVW	Robert Pfluger	10-30-78	11-16-78	1-12-79	1-24-79	1-26-79	2-15-79	3-7-79	3-16-79	4-26-79	11-8-79
69F250-360-03-426	12-5-78	1969 Ford (F-250) 360 CID 6800 GVW	Mike King	12-6-78	12-6-78	Rejected	---	---	---	---	---	---	12-29-78

EG&G Automotive Research, Inc.

1969 Light Duty Trucks
EPA Contract 68-03-2683

VEHICLE I.D. NO.	INITIAL CONTACT (DATE)	VEHICLE/ ENGINE	OWNER'S NAME	EG & G-AR INSPECTION (DATE)	VEHICLE PURCHASE STATUS (DATE)	PRE-TEST PREP. (DATE)	AS REC'D EMISSIONS (DATE)	ENGINE TUNE-UP (DATE)	EMISSIONS TEST (DATE)	ENGINE REMOVED (DATE)	ENGINE SHIPPED (DATE)	ENGINE RETURN (DATE)	VEHICLE DISPOSED (DATE)
69C20-350-02-427	10-10-78	1969 Chev (C-20) 350 CID 7500 GVW	Wm. Gene Fuchs	10-19-78	12-14-78	2-28-79	Deleted per EPA	3-19-79	4-26-79	Released by EPA	---	---	10-25-79
69P200-225-02-428	12-7-78	1969 Dodge (P-200) 225 CID 7500 GVW	Garcia Furniture	12-7-78	12-11-78	12-29-78	1-24-79	1-25-79	2-28-79	Released by EPA	---	---	10-10-79
69C20-250-01-441	10-31-78	1969 Chev (C-20) 250 CID 7500 GVW	Pat Lindelow	10-31-78	11-1-78	12-5-78	12-27-78	1-5-79	1-25-79	Released by EPA	---	---	10-17-79
69D200-318-02-444	8-31-78	1969 Dodge (D-200) 318 CID 7500 GVW	Victor R. Lutes	9-5-78	9-11-78	9-14-78	11-10-78	11-14-78	12-6-78	Released by EPA	---	---	12-29-78
69C20-350-03-450	12-11-78	1969 Chev (C-20) 350 CID 7500 GVW	Steve Smith	12-14-78	12-16-78	12-28-78	1-12-79	1-16-79	2-1-79	Released by EPA	---	---	10-10-79
69F250-360-04-473	1-5-79	1969 Ford (F-250) 360 CID 6900 GVW	Glenn Tatom	1-5-79	1-5-79	1-12-79	1-25-79	1-29-79	2-2-79	Released by EPA	---	---	10-10-79
69F250-360-05-491	1-17-79	1969 Ford (F-250) 360 CID 7500 GVW	Billy D. Hooper	1-17-79	1-19-79	2-2-79	Deleted per EPA	3-16-79	4-17-79	Released by EPA	---	---	10-25-79

EG&G Automotive Research, Inc.

1969 Light Duty Trucks
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VEHICLE I.D. NO.	INITIAL CONTACT (DATE)	VEHICLE/ ENGINE	OWNER'S NAME	EG & G-AR INSPECTION (DATE)	VEHICLE PURCHASE STATUS (DATE)	PRE-TEST PREP. (DATE)	AS REC'D EMISSIONS (DATE)	ENGINE TUNE-UP (DATE)	EMISSIONS TEST (DATE)	ENGINE REMOVED (DATE)	ENGINE SHIPPED (DATE)	ENGINE RETURN (DATE)	VEHICLE DISPOSED (DATE)
6912000-345-01-601	1-23-79	1969 IH (1200 D) 345 CID 7500 GVW	Victoriano Leos, Jr.	1-24-79	1-26-79	2-3-79	Deleted per EPA	3-16-79	4-17-79	Released by EPA	---	---	10-10-79
692500-350-04-602	1-24-79	1969 GMC (2500) 350 CID 7500 GVW	Mike Doyle	1-26-79	1-29-79	2-20-79	Deleted per EPA	3-16-79	4-17-79	Released by EPA	---	---	10-10-79
69C20-307-01-607	11-22-78	1969 Chev (C-20) 307 CID 7500 GVW	August Rangnow	2-14-79	3-8-79	3-14-79	Deleted per EPA	3-19-79	4-12-79	Released by EPA	---	---	10-10-79

EG&G Automotive Research, Inc.

1969 Light Duty Trucks
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VEHICLE I.D. NO.	INITIAL CONTACT (DATE)	VEHICLE/ ENGINE	OWNER'S NAME	EG & G-AR INSPECTION (DATE)	VEHICLE PURCHASE STATUS (DATE)	PRE-TEST PREP. (DATE)	AS REC'D EMISSIONS (DATE)	ENGINE TUNE-UP (DATE)	EMISSIONS TEST (DATE)	ENGINE REMOVED (DATE)	ENGINE SHIPPED (DATE)	ENGINE RETURN (DATE)	VEHICLE DISPOSED (DATE)
69F250-360-06-610	4-5-79	1969 Ford (F-250) 360 CID 6100 GVW	Brett A. Knapp	4-5-79	4-5-79	5-7-79	Deleted per EPA	5-30-79	6-5-79	Released by EPA	---	---	10-10-79
69F250-360-07-613	4-12-79	1969 Ford (F-250) 360 CID 6900 GVW	Ralph Feber	4-12-79	4-12-79	5-7-79	Deleted per EPA	5-30-79	6-10-79	Released by EPA	---	---	10-10-79
692500-250-02-614	4-13-79	1969 GMC (2500) 250 CID 7500 GVW	Dean Hanes	4-13-79	4-13-79	5-17-79	Deleted per EPA	6-8-79	6-17-79	Released by EPA	---	---	10-10-79
69C20-292-01-617	11-78	1969 Chev (C-20) 292 CID 7500 GVW	Felix A. Sultemeier	4-17-79	4-17-79	5-17-79	Deleted per EPA	7-9-79	7-21-79	Released by EPA	---	---	11-1-79
69E300-302-01-618	4-18-79	1969 Ford (E-300) 302 CID 6200 GVW	Rudy Gomez	4-18-79	4-18-79	5-7-79	Deleted per EPA	5-15-79	6-1-79	Released by EPA	---	---	11-1-79
69F250-307-02-621	11-17-78	1969 Chev. (C-20) 307 CID 7500 GVW	James C. Bradshaw	3-12-79	5-10-79	7-2-79	Deleted per EPA	7-9-79	7-24-79	Released by EPA	---	---	10-17-79
69E300-302-02-622	-	1969 Ford (E-300) 302 CID GVW 7600	John Perackez	Inspected by EPA	5-17-79	6-7-79	Deleted per EPA	6-29-79	8-3-79	Released by EPA	---	---	10-10-79

EG&G Automotive Research, Inc.

1969 Light Duty Trucks
EPA Contract 68-03-2683

VEHICLE I.D. NO.	INITIAL CONTACT (DATE)	VEHICLE/ ENGINE	OWNER'S NAME	EG & G-AR INSPECTION (DATE)	VEHICLE PURCHASE STATUS (DATE)	PRE-TEST PREP. (DATE)	AS REC'D EMISSIONS (DATE)	ENGINE TUNE-UP (DATE)	EMISSIONS TEST (DATE)	ENGINE REMOVED (DATE)	ENGINE SHIPPED (DATE)	ENGINE RETURN (DATE)	VEHICLE DISPOSED (DATE)
69C20-250-03-623		1969 Chev (C-20) 250 CID 7500 GVW	Robert Kuhn	5-18-79	5-24-79	6-1-79	Deleted per EPA	7-20-79	9-03-79	Released by EPA	---	---	10-10-79
69C20-307-03-636		1969 Chev (C-20) 307 CID 7500 GVW	Paul Archer	7-9-79	7-9-79	Rejected	---	---	---	----	----	----	8-6-79

EG&G Automotive Research, Inc.
1972/73 Light Duty Trucks
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VEHICLE I.D. NO.	INITIAL CONTACT (DATE)	VEHICLE/ ENGINE	OWNER'S NAME	EG & G-AR INSPECTION (DATE)	VEHICLE PURCHASE STATUS (DATE)	PRE-TEST PREP. (DATE)	ENGINE TUNE-UP (DATE)	EMISSIONS TEST (DATE)	ENGINE REMOVED (DATE)	ENGINE SHIPPED (DATE)	ENGINE RETURN (DATE)	VEHICLE DISPOSED (DATE)
73C20-350-01 448	10-31-78	1973 Chev (C-20) 350 CID 6400 GVW	Marvin Foxworth	10-31-78	10-31-78	12-19-78	1-16-79	2-6-79	Released by EPA	---	--	3-27-79
73 C20-454-01-474	1-8-79	1973 Chev (C-20) 454 CID 6200 GVW	R. V.. Gonzales	1-8-79	1-8-79	1-12-79	1-16-79	2-2-79	1-17-80	1-25-80	3-30-80	6-27-80
73 C20-350-02-484	1-10-79	1973 Chev (C-20) 350 CID 6400 GVW	C. T. Woods	1-11-79	1-12-79	1-18-79	2-6-79	2-21-79	Released by EPA	---	---	3-27-79
73 D200-360-01-486	1-8-79	1973 Dodge (D-200) 360 CID 6200 GVW	Arthur B. Smith	1-12-79	1-15-79	1-23-79	1-30-79	2-5-79	11-1-79	11-13-79	1-20-80	4-29-80
73 C-10-350-03 488	1-10-79	1973 Chev (C-10) Suburban 350 CID 7150 GVW	R. C. Waltersdorf	1-12-79	1-12-79	1-16-79	1-18-79	2-28-79	Released by EPA	---	---	3-27-79
73C10-454-02 600	1-25-79	1973 Chev (C-10) Suburban 454 CID 6800 GVW	Don Inglehart	1-25-79	1-26-79	2-22-79	3-15-79	Released by EPA	---	---	---	4-3-79
731210-392-01-603	1-12-79	1973 IH (1210) 392 CID 6300 GVW	Robert Westall	2-16-79	2-24-79	3-1-79	3-9-79	Released by EPA	---	---	---	3-27-79

EG&G Automotive Research, Inc.
1972/73 Light Duty Trucks
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VEHICLE I.D. NO.	INITIAL CONTACT (DATE)	VEHICLE/ ENGINE	OWNER'S NAME	EG & G-AR INSPECTION (DATE)	VEHICLE PURCHASE STATUS (DATE)	PRE-TEST PREP. (DATE)	ENGINE TUNE-UP (DATE)	EMISSIONS TEST (DATE)	ENGINE REMOVED (DATE)	ENGINE SHIPPED (DATE)	ENGINE RETURN (DATE)	VEHICLE DISPOSED (DATE)
73C20-350-04-604	1-7-79	1973 Chev (C-20) 350 CID 6400 GVW	T. C. Kelly	2-16-79	3-5-79	3-6-79	Released by EPA	---	---	---	---	3-27-79
73D200-318-01-605	3-8-79	1973 Dodge (D-200) 318 CID 6900 GVW	Herb's Used Cars (U.S. Dept. Agr.)	3-8-79	3-8-79	3-12-79	5-4-79	5-21-79	9-13-79	10-3-79	1-20-80	4-29-80
73K10-350-05-606	3-8-79	1973 GMC K10 350 CID	Jim Keller	3-8-79	3-8-79	Released by EPA	---	---	---	---	---	3-27-79
732500-454-03-608	3-29-79	1973 GMC (2500) 454 CID 6400 GVW	H. M. Vik	3-29-79	3-29-79	4-10-79	4-17-79	5-14-79	---	---	---	12-19-79
73W200-360-02-609	3-29-79	1973 Dodge (W-200) 360 CID 8000 GVW	Dave Prescott	3-29-79	3-29-79	4-17-79	4-30-79	5-16-79	---	---	---	12-19-79
731210-304-01-611	4-10-79	1973 IHC (1210) 304 CID 7200 GVW	Bruno's Used Cars	4-10-79	4-10-79	4-24-79	5-5-79	5-17-79	12-20-79	1-23-80	3-13-80	4-29-80
721500-350-06-612	4-11-79	1972 GMC Suburban (1500) 350 CID 6650 GVW	Harry Pierce	4-11-79	4-11-79	5-7 79	5-18-79	5-26-79	---	---	---	3-13-80

EG&G Automotive Research, Inc.
1972/73 Light Duty Trucks
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VEHICLE I.D. NO.	INITIAL CONTACT (DATE)	VEHICLE/ ENGINE	OWNER'S NAME	EG & G-AR INSPECTION (DATE)	VEHICLE PURCHASE STATUS (DATE)	PRE-TEST PREP. (DATE)	ENGINE TUNE-UP (DATE)	EMISSIONS TEST (DATE)	ENGINE REMOVED (DATE)	ENGINE SHIPPED (DATE)	ENGINE RETURN (DATE)	VEHICLE DISPOSED (DATE)
731210-304-02 619	4-24-79	1973 IHC (1210) 304 CID 7200 GVW	Bonded Investment Co.	4-24-79	4-30-79	5-17-79	Rejected	Released by EPA	---	---	---	6-11-79
72F250-360-01-620	5-3-79	1972 Ford (F-250) 360 CID 6200 GVW	Sidney Forster	5-3-79	5-3-79	5-17-79	5-29-79	6-1-79	9-19-79	9-28-79	1-20-80	4-29-80
72F250-360-02-624	5-31-79	1972 Ford (F-250) 360 CID 6200 GVW	Paul Buhler	6-1-79	6-1-79	6-11-79	6-13-79	6-18-79	10-3-79	10-18-79	3-30-80	4-29-80
72E300-302-01-625	6-1-79	1972 Ford (E-300) 302 CID 6200 GVW	H & H Motors	6-1-79	6-4-79	6-11-79	6-15-79	6-20-79	---	---	---	12-19-79
72 C20-350-07-626	6-7-79	1972 Chev (C-20) 350 CID 6400 GVW	Gene Harley	6-7-79	6-7-79	6-28-79	Rejected	Released By EPA	---	---	---	7-10-79
73W200-360-03-627	6-6-79	1973 Dodge (W-200) 360 CID 8000 GVW	Smith Neilson Dodge	6-6-79	6-6-79	6-12-79	6-29-79	7-15-79	---	---	---	1-3-80
73C20-292-01-628	6-6-79	1973 Chev (C-20) 292CID 6400 GVW	S. R. Sigler	6-6-79	6-8-79	6-23-79	8-13-79	9-13-79	10-17-79	10-30-79	1-20-80	4-29-80

EG&G Automotive Research, Inc.
1972/73 Light Duty Trucks
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VEHICLE I.D. NO.	INITIAL CONTACT (DATE)	VEHICLE/ ENGINE	OWNER'S NAME	EG & G-AR INSPECTION (DATE)	VEHICLE PURCHASE STATUS (DATE)	PRE-TEST PREP. (DATE)	ENGINE TUNE-UP (DATE)	EMISSIONS TEST (DATE)	ENGINE REMOVED (DATE)	ENGINE SHIPPED (DATE)	ENGINE RETURN (DATE)	VEHICLE DISPOSED (DATE)
72C20-350-08-629	6-6-79	1972 Chev (C-20) 350 CID 6200 GVW	King Trainor	6-6-79	6-8-79	6-16-79	6-18-79	6-21-79	11-6-79	11-21-79	3-30-80	6-5-80
72F250-360-03 630	6-7-79	1972 Ford (F-250) 360CID 6200 GVW	Big Country Motors	6-7-79	6-7-79	6-16-79	6-25-79	6-29-79	11-6-79	11-15-79	3-30-80	4-29-80
72 C20 350-09-631	6-7-79	1972 Chev (C-20) 350 CID 7500 GVW	Bill Crouch Chrysler	6-7-79	6-7-79	6-20-79	6-26-79	7-7-79	10-8-79	10-31-79	1-20-80	4-29-80
73C20-250-01-632	6-8-79	1973 Chev (C-20) 250 CID 6400 GVW	Golden Ford, Inc.	6-8-79	6-8-79	6-19-79	7-5-79	7-15-79	---	---	---	12-28-79
72C20-350-10-634	6-8-79	1972 Chev (C-20) 350 CID 6200 GVW	Braden Oil Co.	6-8-79	6-12-79	6-21-79	6-25-79	7-3-79	9-18-79	9-26-79	1-20-80	4-29-80
72F250-390-01-635	6-18-79	1972 Ford (F-250) 390 CID 7500 GVW	Charles Valentine	6-18-79	6-18-79	6-28-79	8-16-79	9-8-79	9-10-79	9-26-79	1-20-80	4-29-80

EG&G Automotive Research, Inc.
1972/73 Light Duty Trucks
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72C20-350-11 637	6-8-79	1972 Chev (C-20) 350 CID 7500 GVW	R. W. Dyer	7-12-79	7-17-79	7-18-79	7-20-79	9-6-79	---	---	---	12-19-79
731HC-1210-345-02-638	7-23-79	1973 IHC (1210) 345 CID 7500 GVW	Doug Thayer	7-24-79	7-24-79	Rejected	---	---	---	---	---	7-30-79
731HC-1210-345-03-639	8-06-79	1973 IHC (1210) 345 CID 6300 GVW	Pantaleon Archibeque	8-25-79	8-25-79	8-30-79	10-24-79	---	1-10-80	1-23-80	3-13-80	4-21-80
72F250-390-02-640	9-13-79	1972 Ford (F-250) 390 CID 7500 GVW	Mike McAdams	9-13-79	9-13-79	9-20-79	9-27-79	10-22-79	1-17-80	1-22-89	3-30-80	5-14-80
72F250-360-04-641	9-18-79	1972 Ford (F-250) 360 CID 7500 GVW	Charles W. Morrell	9-21-79	9-26-79	9-28-79	10-2-79	11-1-79	---	---	---	3-13-80
72C20-350-12-642	10-1-79	1972 Chev (C-20) 350 CID 7500 GVW	Charles M. Dake	10-11-79	10-11-79	10-23-79	10-25-79	11-5-79	11-15-79	12-10-79	1-20-80	4-29-80
72F250-360-05-643	9-28-79	1972 Ford (F-250) 360 CID 6200 GVW	Edward F. Rogers	10-11-79	10-11-79	10-24-79	11-5-79	12-10-79	---	---	---	3-13-80

EG&G Automotive Research, Inc.
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VEHICLE I.D. NO.	INITIAL CONTACT (DATE)	VEHICLE/ ENGINE	OWNER'S NAME	EG & G-AR INSPECTION (DATE)	VEHICLE PURCHASE STATUS (DATE)	PRE-TEST PREP. (DATE)	ENGINE TUNE-UP (DATE)	EMISSIONS TEST (DATE)	ENGINE REMOVED (DATE)	ENGINE SHIPPED (DATE)	ENGINE RETURN (DATE)	VEHICLE DISPOSED (DATE)
72C20-350-13-644	10-18-79	1972 Chev (C-20) 350 CID 6200 GVW	James E. Blake	10-18-79	10-18-79	10-31-79	11-1-79	1-19-80	---	---	---	3-13-80

APPENDIX C

FTP DATA AUDIT CHECK LISTS

The following typical data audit check lists are presented here to illustrate quality aspects of EG&G-AR's testing procedures:

1) Non Evaporative Hot LA-4 Precondition
2) Precondition Trace
3) Drivers FTP Check List
4) FTP Drivers Trace
5) Wet Bulb/Dry Bulb Chart
6) CO/CO_2 Instrument Traces
7) HC/NO_x Instrument Traces
8) CVS-CFV Test Data Sheet
9) Computer Input and Output
10) Dynamometer Warmup Check List
11) Comments to be Resolved

QUALITY CONTROL AUDIT OF:

NON-EVAPORATIVE HOT LA-4 PRECONDITION CHECK LIST

	Yes	No	Contact	Comments	Comments Resolved
1) Test Number					
2) Vehicle Number					
3) Date					
4) Dyno Code					
5) Time					
6) I.W. Correct?					
7) I.H.P. Correct?					
8) Correct Fuel Type Used?					
9) Correct Fuel Tank Capacity Entered?					
10) Correct Amount of Fuel Put In Tank?					
11) Fuel Temp Less Than 86°F					
12) Are Items 1 - 8 Completed Properly?					
13) Correct Time Entered for Last Dyno Use?					
14) Are Items 9 - 16 Completed Properly?					
15) Is Test Area Temp Between 68°F and 86°F?					
16) Are Items 17 - 20 Completed Properly?					
17) Is IHP From Digital Display within ± .2 of the Value Determined During Calibration?					
18) Time at End of Precondition (S.O.S.)					
19) Items 21 - 28 Completed Properly?					
20) Is Soak Area Temp Between 68°F and 86°F?					
21) Driver's Signature Entered?					
22) QC Signature Entered?					

QUALITY CONTROL AUDIT OF:

PRECONDITION TRACE

	Yes	No	Contact	Comments	Comments Resolved
1) Vehicle Number					
2) Test Number					
3) Dyno Number					
4) Date					
5) Time					
6) Time Less than 2 Hours After Dyno Warm Up?					
7) I.W. Correct?					
8) I.H.P. Correct?					
9) 50 MPH Entered Adjacent to I.H.P.					
10) 50 MPH Cal. Check on Trace?					
11) Driver's Signature on Trace?					
12) Trace OK?					
13) Q.C. Signature Entered?					

QUALITY CONTROL AUDIT OF:

DRIVER'S FTP CHECK LIST

	Yes	No	Contact	Comments	Comments Resolved
1) Date					
2) Test Number					
3) Vehicle Number					
4) Dyno Number					
5) Driver's Name Entered?					
6) I.W. Correct?					
7) I.H.P. Correct?					
8) Time at Beginning of 12 Hour Soak (SOS)					
9) Is Above Time Same as End of Precondition?					
10) Time at Start of Test?					
11) Is SOT 12-24 Hours Later Than SOS?					
12) Is Calculated Soak Time Correct?					
13) Time at Which Dyno Was Last Used?					
14) Are Items 1-7 Properly Completed?					
15) Were Vehicle Tires at Approx. 45 PSI for Test?					
16) Are Items 8-16 Properly Completed?					
17) Do Sling and Strip Chart Agree Within 1.8°F?					
18) Are Items 17-26 Properly Completed?					
19) Starting Conditions Properly Noted?					
20) Are Items 27-41 Properly Completed?					
21) Driver's Signature Entered?					
22) QC Signature Entered?					

QUALITY CONTROL AUDIT OF:

FTP DRIVER'S TRACE

	Yes	No	Contact	Comments	Comments Resolved
1) Vehicle Number					
2) Test Number					
3) Dyno Number					
4) Date					
5) Time					
6) Driver's Signature on Trace					
7) I.W. Correct?					
8) I.H.P. Correct?					
9) 50 MPH Entered Adjacent to I.H.P.?					
10) 50 MPH Calibration at Beginning of Trace?					
11) Trace OK?					
12) Driving Abnormalities Noted?					
13) 50 MPH Speed Check at End of Trace?					
14) Is I.H.P. Within $\pm$ 0.5 HP of Original Setting?					
15) QC Signature Entered?					

QUALITY CONTROL AUDIT OF:

WB/DB CHART

	Yes	No	Contact	Comments	Comments Resolved
1) Vehicle Number					
2) Test Number					
3) Date					
4) Time Entered?					
5) Driver's Name or Initial's Entered?					
6) SOP 1 Marked?					
7) SOP 2 Marked?					
8) Hot Soak Marked?					
9) SOP 3 Marked?					
10) EOT Marked?					
11) DB Temperature 68°F to 86°F?					
12) QC Signature Entered?					

QUALITY CONTROL AUDIT OF:

CO/CO_2 INSTRUMENT TRACES

	Phase 1 Yes	Phase 1 No	Phase 2 Yes	Phase 2 No	Phase 3 Yes	Phase 3 No	Contact	Comments	Comments Resolved
1) Vehicle Number									
2) Test Number									
3) Date									
4) Time Entered?									
5) Signature Entered?									
6) Chart Speed Entered?									
7) CO Span OK? (Low Range)									
8) CO_2 Span OK? (Low Range)									
9) Zero OK?									
10) CO Span OK?									
11) CO_2 Span OK?									
12) Zero OK?									
13) CO Sample OK?									
14) CO Range?									
15) CO Deflection?									
16) CO_2 Sample OK?									
17) CO_2 Range?									
18) CO_2 Deflection?									
19) Ambient CO Trace OK?									
20) Ambient CO Deflection?									
21) Ambient CO OK?									
22) Ambient CO_2 Trace OK?									
23) Ambient CO_2 Deflection?									
24) Zero OK?									
25) CO Span OK?									
26) CO_2 Span OK?									
27) Zero OK?									
28) Repeat Steps 9 - 27									
29) All Operator Errors Marked?									
30) QC Signature Entered?									

QUALITY CONTROL AUDIT OF:

HC/NO_x INSTRUMENT TRACES

	Phase 1 Yes	Phase 1 No	Phase 2 Yes	Phase 2 No	Phase 3 Yes	Phase 3 No	Contact	Comments	Comments Resolved
1) Vehicle Number									
2) Test Number									
3) Date									
4) Time Entered?									
5) Signature Entered?									
6) Chart Speed Entered?									
7) HC Span OK (Low Range)?									
8) NO_x Span OK (Low Range)?									
9) Zero OK?									
10) HC Span OK?									
11) NO_x Span OK?									
12) Zero OK?									
13) HC Sample OK?									
14) HC Range									
15) HC Deflection									
16) NO_x Sample OK?									
17) NO_x Range									
18) NO_x Deflection									
19) Ambient HC Trace OK?									
20) Ambient HC Deflection									
21) Ambient HC OK?									
22) Ambient NO_x Trace OK?									
23) Ambient NO_x Deflection									
24) Zero OK?									
25) HC Span OK?									
26) NO_x Span OK?									
27) Zero OK?									
28) Repeat Steps 9-27									
29) All Operator Errors Marked?									
30) QC Signature Entered?									

QUALITY CONTROL AUDIT OF:

CVS-CFV TEST DATA SHEET

	Yes	No	Contact	Comments	Comments Resolved
1) Date					
2) Test Number					
3) Vehicle Number					
4) Odometer					
5) I.W. Correct?					
6) Thumb Wheel Correct?					
7) Barometric Pressure Reasonable (28.5 to 30 in. Hg.)					
8) Barometric Temp. Reasonable?					
9) Dry Bulb Temp. Correct?					
10) Wet Bulb Temp. Correct?					
11) Roll Revs. Entered Correctly?					
12)					
13) VMIX 1 Reasonable?					
14) VMIX 2 Reasonable?					
15) VMIX 3 Reasonable?					
16) Time at SOP 1?					
17) Is SOP 1 Within Two Hours of Warm Up?					
18) Time at EOP 1?					
19) EOP 1 = SOP 2?					
20) SOP 2 - SOP 1 = +8.5 $\pm$ 0.5 Minutes?					
21) EOP 2 - SOP 2 = +14.5 $\pm$ 0.5 Minutes?					
22) SOP 3 - EOP 2 = 10 $\pm$ 1 Min.?					
23) EOP 3 - SOP 3 = +8.5 $\pm$ 0.5 Minutes?					
24) ET 1 = 505 $\pm$ 4 sec. + Stall Seconds?					
25) ET 2 = 867 $\pm$ 4 Seconds?					
26) ET 3 = 505 $\pm$ 4 Seconds + Stall?					

QUALITY CONTROL AUDIT OF:

CVS-CFV TEST DATA SHEET (CONTINUED)

	Yes	No	Contact	Comments	Comments Resolved
27) Ranges Correct for CO?					
28) Ranges Correct for CO_2?					
29) Deflections for CO Read Correctly?					
30) Deflections for CO_2 Read Correctly?					
31) Concentrations Correct for CO?					
32) Concentrations Correct for CO_2?					
33) Ranges Correct for HC?					
34) Ranges Correct for NO_X?					
35) Deflections for HC Read Correctly?					
36) Deflections for NO_X Read Correctly?					
37) Concentrations Correct for HC?					
38) Concentrations Correct for NO_X?					
39) EOA Less Than or Equal To EOP 1 + 20 Minutes?					
40) EOA 2 Less Than or Equal to EOP 2 + 20 Minutes?					
41) EOA 3 Less Than or Equal to EOP 3 + 20 Minutes?					
42) Does Comment Imply Test Is OK?					
43) Operator's Signature Entered?					
44) QC Signature Entered?					

QUALITY CONTROL AUDIT OF:

COMPUTER INPUT AND OUTPUT

	Yes	No	Contact	Comments	Comments Resolved
1) Date					
2) Vehicle Number					
3) Test Number					
4) Roll Revs. Entered Correctly					
5) If 1977 Year Model Were STD Roll Revs. Used					
6) BO Entered Correctly?					
7) BT Entered Correctly?					
8) DB Temp Correct?					
9) WB Temp Correct?					
10) VMIX Correct?					
11)					
12) Meter Reading Correct?					
13) Concentration Values Correct?					
14) QC Signature Entered?					

QUALITY CONTROL AUDIT OF:

DYNAMOMETER WARM-UP CHECK LIST

Part "A"	Yes	No	Contact	Comments	Comments Resolved
1) Date					
2) Dyno Code					
3) Test Number					
4) Car Number					
5) Start Time					
6) Vehicle Make Entered?					
7) Vehicle Model Entered?					
8) I.H.P. Correct?					
9) I.W. Correct?					
10) Tech. Name Entered?					
11) Items 1-14 Properly Completed?					
Part "B"					
12) Item 1 Completed?					
13) Is applied Inertia Weight correct?					
14) Items 3-6 Completed Properly?					
15) Stop Time from Item 6					
16) Items 7-11 Completed Properly?					
17) Driver's Signature Entered?					
18) Date Entered?					
19) Time Entered?					
20) QC Signature Entered?					

COMMENTS TO BE RESOLVED

Technician	Comments	Comments Resolved	QC Review	OK
NAME				
NAME				
NAME				
NAME				
NAME				
NAME				
NAME				
NAME				
NAME				